

GunDigest® Book of

CLASSIC

# COMBAT HANDGUNS



Dan Shideler

**GunDigest® Book of**  
**CLASSIC**  
**COMBAT**  
**HANDGUNS**

**Dan Shideler**

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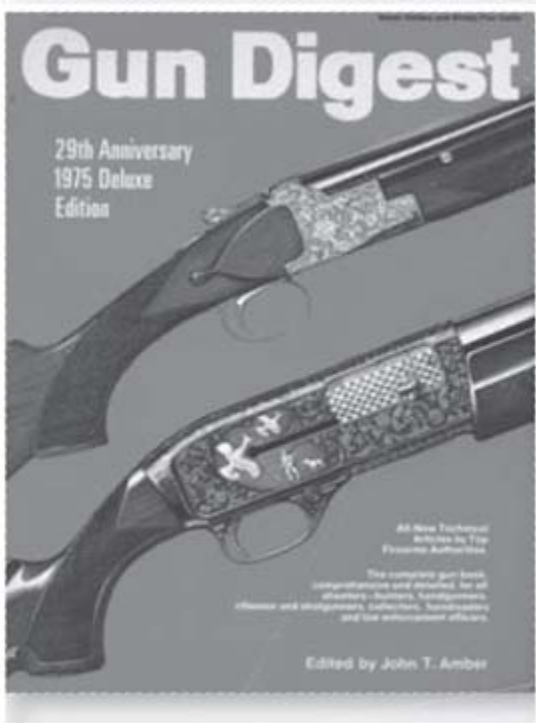
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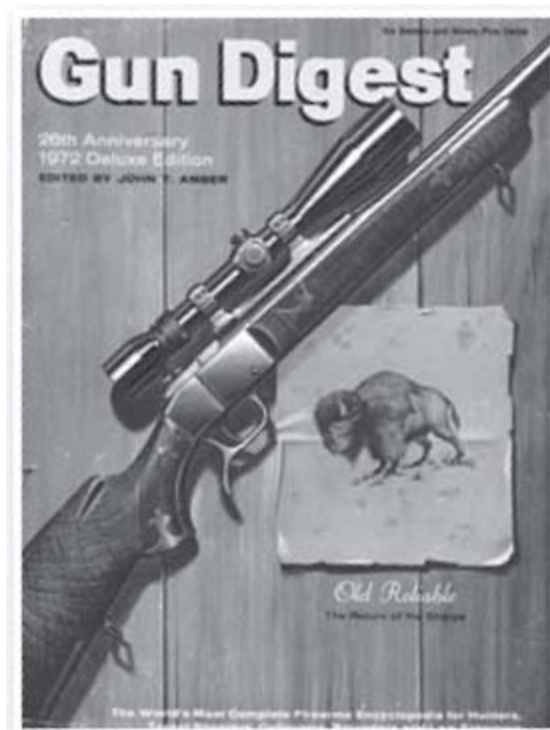
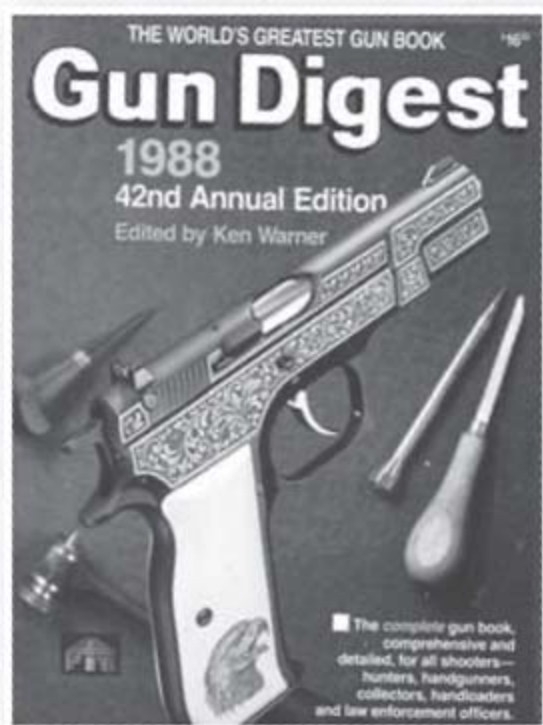
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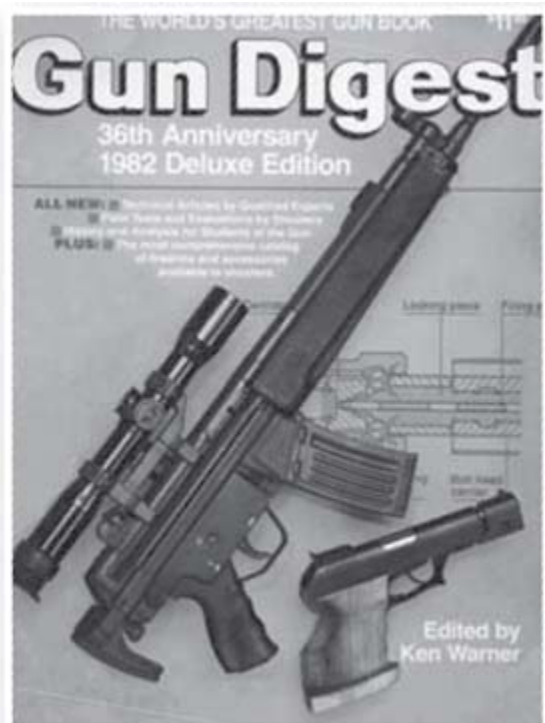
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# Gun Digest

1999/53rd Annual Edition

Edited by Ken Warner

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# Introduction

Welcome to the *Gun Digest Book of Classic Combat Handguns*!

**I**t might have been quite a job for editor Dan Shideler to select the chapters for this book, but then again it was also a pure labor of love. Dan, who passed away April 3, 2011, probably savored every moment he spent combing through his collection of *Gun Digest* annuals dating all the way back to the inaugural 1944 edition.

*Gun Digest* was an integral part of Dan's life from the time he was a teenager. He was named editor of the *World's Greatest Gun Book* in 2009, just in time to start work on the 2010 edition. In the introduction to that volume, Dan wrote:



“I was raised on *Gun Digest*. Once a year, in the long-gone Indiana of the 1960s and 1970s, my father brought home the new edition, which my brother Dave and I eagerly devoured. I mean we read it literally from cover to cover, absorbing whatever wisdom and insight that could be found in its pages. I still have some of those 40-year-old volumes, nearly all of them showing pencil marks in their catalog sections where we, with boyish enthusiasm, checked guns that we would surely buy someday...

“And now, forty-some years later, I am the editor of that same book. Karma? The inscrutable workings of Fate? Call it what you will, I will say simply that it is an honor — for me, it’s the stuff that dreams are made of.” Even though Dan is no longer with us, the literature he chose to represent some of the most memorable combat handguns of all-time is testament to great guns and great gun writers.



Dan Shideler  
1960 – 2011





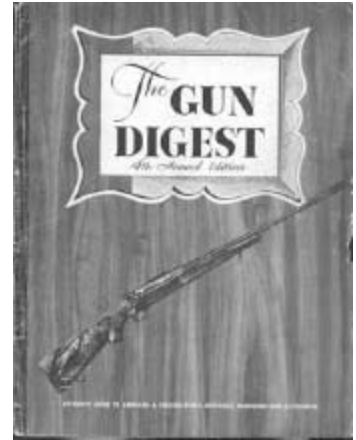
The content herein spans 1949-1999. Topics range from the obvious (Model 1911, Luger, Glock) to instructional (“Rating Handgun Power”) to historical (“Early Rivals of the 1911”) to just plain ol’ food for thought (“Too Many 45s?”).

Once available only to those few collectors who owned a complete set of *Gun Digest*, *Gun Digest Book of Classic Combat Handguns* represents the cream of the crop from the most enduring gun annual of all time. We hope you enjoy reading this compilation as much as Dan enjoyed putting it together.

*Sincerely,*  
*Corrina Peterson*  
*Editor*  
*Gun Digest Books*

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1949-1950



## Handgun Facts

■ Major Charles Ashihs, Jr.

**T**HE FIRST revolver was patented by young Samuel Colt in 1836. Since then there have been no less than 156 manufacturers of revolving handguns. The Army and Navy, since that time, have adopted 44 different revolvers and 9 different pistols, made by 32 separate manufacturers, ranging in calibers from 32 to 58. The earliest model was accepted in 1842, the last in 1911. While Colt invented the first firearm which successfully employed a cylinder containing separate charges of powder and ball, it remained for another soon-to-grow-famous New Englander, Douglas Wesson, to adapt his newly perfected 22 rim fire cartridge to an equally successful and new revolver. His revolver, puny and low powered, was quite popular with Union officers during the War between the States. This revolver, a seven-shot breech loader, was the Model of 1855.

From their crude beginnings in 1836, the Colt and contemporary revolvers were what is known as the single action type — the hammer must be eared back each time a shot is fired. About 1877 the double action

revolver made its appearance. This gun was a considerable refinement over the original as it merely necessitated pulling the trigger strongly to make the hammer rise and fall. In addition, of course, the weapon could be employed as a single action any time the shooter desired. As may well be appreciated, the double-action feature made it possible not only to fire the first shot quicker and more accurately, but also to get off the following shots with greater speed. Today, all revolvers are of the double action type save three. The original Colt Peacemaker (discontinued) is still sold in quantities, as well as two inexpensive semi-target revolvers.



**MAJOR CHARLES ASKINS, JR.** is undoubtedly the country's foremost handgun authority. Not only is he a ballistic and arms expert, but also a world renowned shooter who has won every major handgun championship at one time or another.

### **Service Type Revolvers**

As revolvers were improved, three definite types emerged. The first of these was the service type handgun. This is a revolver of 38, 44 or 45 caliber with a large frame, considerable weight, not less than a 4 to 6 inch barrel with fixed sights, a large grip, and characterized by great sturdiness of construction, rugged reliability and long life. Both Colt and Smith & Wesson make such guns in several models and calibers:

**Colt New Service (Discontinued)**

**Colt Official Police**

**S & W Military and Police**

**S & W 38-44 Heavy Duty**

**S & W 1926 Model 44 Military**

**S & W 357 Magnum**

## **S & W 1917 Army (1949 Production)**

### **Utility or Pocket Type Revolvers**

We have a second and much larger group of handguns which may be classed as general utility or pocket weapons. These models are not nearly as big or as heavy as the service type revolvers and are almost invariably of smaller caliber and shorter barrel length, lighter in weight, and have been designed essentially for stowing in the pocket or concealing beneath the coat. They may be grouped as follows:

**Colt Police Positive Special**

**Colt Police Positive (Not in Production)**

**Colt Detective Special**

**Colt Banker's Special**

**(Not in Production)**

**Colt Pocket Positive**

**(Not in Production)**

**S & W Military and Police**

**S & W Terrier (1949 Production)**

**S & W Hand Ejector (1949 Production)**

**S & W Regulation Police**

**(1949 Production)**

**I. J. Protector (Not in Production)**

**Iver Johnson Hammerless**

**(Not in Production)**

### **Target Type Revolvers**

The major class of revolvers is the target handguns. These models have seen more development and refinement than either the service or utility types due to the fact that target shooters are a more vocal group than any other class of revolver users; as a consequence, they have demanded, and obtained in some measure, those improvements which they desired.

**Colt Officers Model**

**Colt Police Positive Target**

**(Not in Production)**

**Colt Shooting Master**

**(Not in Production)**

**S & W K-22 Masterpiece**  
**S & W 22-32 Target (1949 Production)**  
**S & W 22-32 Kit Gun**  
**(1949 Production)**  
**S & W 38-44 Outdoorsman**  
**S & W 1926 Model 44 Target**  
**Harrington & Richardson Sportsman**  
**Iver Johnson Supershot Sealed Eight**  
**I. J. Champion (Not in Production)**

### **Automatic Pistols**

At various times during the past, auto pistols have been made by Savage, Remington, Harrington & Richardson, Smith & Wesson, and other companies since gone out of existence. Today, only Colt and High Standard survive.

Colt automatic pistols are a result of the inventive genius of the world's greatest firearms designer, the incomparable John Browning. The weapons range from the tiny 22 caliber to the 45 ACP. In Europe, the Fabrique Nationale d' Armes de Guerre, at Herstal, Belgium, manufacture the Browning auto pistols which are the same as the Colt product. The FN Company, however, produces only the 25, 32, and 380 Auto, and, so far as is known, have never attempted to manufacture a 22 similar to the Colt Woodsman. The 45 Colt Automatic is the property of the U.S. Government and, consequently, was never considered for manufacture by the Belgium firm.

Service automatic pistols used by the military and police, as well as outdoorsmen, are the following: Colt 45 Automatic Model 1911 and the Colt 38 Super Automatic.



**Here is the author** with his handy shooting case made by Buchanan. This versatile carrying case holds a battery of handguns, supports the spotting scope on the folding lid, and provides plenty of space for ammunition, cleaning gear and other essentials.

Very recently High Standard has designed for future production an entirely new automatic pistol chambered for the 38 Special cartridge. This pistol will be a big gun with a weight of 40 ounces and will utilize one of the finest all-purpose cartridges in the book. It will offer strong competition to the 45 and the 38 Super.

Among the utility or pocket type automatics, Colt had three little guns identical in action but differing slightly in weight, frame, and barrel length. These models were made up for the 25 Auto, 32 Auto and 380 Auto cartridges. High Standard also makes an automatic for the 380 Auto cartridge.

### **Automatic Target Pistols**

Automatic pistols intended for use as target handguns represent the most tangible progress in the improvement of hand weapons during recent years. Credit for this improvement lies largely with High Standard. Some 25 years

ago this company, newly organized, designed a 22 auto pistol that was roughly finished but possessing many virtues. It had a 6¾ inch barrel, good sights, considerable weight, fair balance, and reliability — plus a very reasonable price. As a result of the success of this model, the company developed a line of target guns which incorporated longer stocks, greater weight, heavier barrels, improved trigger pull, adjustable sights, and outside hammers. As a result of these improvements the High Standard auto pistol is today as good as any firearm made. The improved High Standard guns especially constructed for target shooting (before World War II) were:

<b>Model A</b>	<b>weight 36 ozs.</b>	<b>Hammerless</b>
<b>Model H-A</b>	<b>weight 36 ozs.</b>	<b>Hammer</b>
<b>Model D</b>	<b>weight 40 ozs.</b>	<b>Hammerless</b>
<b>Model H-D</b>	<b>weight 40 ozs.</b>	<b>Hammer</b>
<b>Model E</b>	<b>weight 42 ozs.</b>	<b>Hammerless</b>
<b>Model H-E</b>	<b>weight 42 ozs.</b>	<b>Hammer</b>

Of these, only the H-D Military is now in production.

Colt, under the prodding of their energetic competitor, brought out the Match Target Woodsman in 1937. This was a great improvement over the original Woodsman. It had a much heavier barrel which eliminated the shimmy at the front end and made possible an increase in weight (36 ozs.) of the entire piece. This pistol was an instantaneous success and champion handgunners promptly established an entirely new set of 22 caliber records with it.

In 1948 Colt further improved the Match Target Woodsman to the extent that it is practically a new gun. The Match Target now has a weight of 41 ounces, a still heavier barrel, click adjusting rear sight, a newly designed receiver with a grip long enough and large enough for a man's hand, a splendid target trigger pull with a built-in trigger stop, a disconnecter so that the weapon cannot double (fire several shots with one pull of the trigger) and a slide latch with a new clip release.

These mechanical advancements, beneficial though they are, shrink to somewhat insignificant proportions when viewed against the really outstanding improvements of this splendid new Woodsman. The truly great

accomplishment of the Colt engineers is the remarkable degree of balance achieved in this arm. Here, unquestionably, is the best balanced, best feeling, and most natural pointing handgun ever manufactured! The balance is an incomparable thing. So cleverly has the weight been distributed, that so comfortable does the grip feel, and so naturally does the gun hang, that it practically aims itself. Great things are predicted for this brilliant new Colt.

The new High Standard 38 Special auto pistol, when it makes its appearance, will be somewhat of a sensation. It will eclipse, in my opinion, the dominant target firearm in the center fire category today, which is the 38 revolver. In match shooting the revolver must necessarily be cocked for each shot discharged in the timed and rapid fire stages. This process takes a lot of time and hurts the score. With the arrival of the High Standard, 38 automatic, this undersirable feature will be eliminated. As a consequence, the gunner will have more time to aim and squeeze each shot. The revolver is obsolescent. With the appearance of a first class self-loading pistol, it will be completely eliminated as a target proposition. High Standard also intends to produce a companion pistol in 22 caliber.



**The Colt National Match 45 Automatic**, a great favorite in match shooting, is to be replaced by a new and lighter caliber automatic pistol now under consideration by the Army.

Two years ago, an interesting new 22 single shot pistol, the Tompkins, was put into very limited production in this country. This weapon has a trigger mechanism superior to any yet seen on American handguns. This mechanism contrives to cam the sear out of the hammer notch. This camming action permits a trigger which has no perceptible movement — at least to the eye — and makes possible an exceedingly light, adjustable pull. Further, the Tompkins has a rather unique type of action. It resembles



nothing so much as the old Springfield Model 1870 ride. Other than these features, the pistol has little to recommend it. It is too light, The grip is ill-shaped, the barrel is on the waspy side, and the rear sight is startlingly crude. Slow fire pistol shooting is not popular in the United States. Consequently, a single shot weapon can never hope to attain popularity.

### **Foreign Handguns**

A veritable flood of war-prize handguns has reached the U. S. These pistols are almost entirely of automatic type and are either 7.65 mm (32 ACP) or 9 mm Luger calibers. They are, for the most part, roughly machined and badly finished, although those which come from Germany are superior in design to the best which American manufacturers now produce.

The Walther P-38, firing the 9 mm Luger cartridge, was the standard German military sidearm and is excellent though roughly machined. Nonetheless, it is a weapon with numerous superior improvements in design. It has a double action feature which precludes the necessity of cocking the weapon in order to fire the first shot, and it is possible to get off the first shot faster than conventional automatics. It has a safety of novel design, is quickly and easily disassembled with out tools, utilizes the powerful 9 mm Luger cartridge, and has an indicator which reveals at all times whether or not there is a cartridge in the chamber. The P-38 is muzzle light, a serious fault for precision shooting, and the trigger pull is not especially good (this latter fault may be rather easily corrected, however).

Luger and Mauser pistols were brought home by our returning veterans in somewhat smaller numbers. Both pistols are well known here because of regular importation for many years prior to the war. Both are out-of-date and while they fire excellent cartridges from a ballistic standpoint, the guns themselves possess so many faults as to be undesirable. The Walther pistol in Models PP and PPK, calibers 7.65 and 9 mm Korto (380 ACP), as well as the Mauser HSc Model, and the Sauer Double Action auto pistol are excellent pocket automatics incorporating the double action feature of the P-38.

The Austrian Steyr, Italian Beretta and Glisenti, and the Japanese Nambu automatic pistols, as well as a score of others, are interesting souvenirs, but due to a lack of proper ammunition or because of poor workmanship,

inferior materials, badly designed sights, or an abominable trigger pull, are hardly worthy of consideration for any sort of serious handgun work.

### **Air Pistols**

During recent years, we have developed some exceedingly interesting air pistols. These pistols are entirely out of the small boy's air gun class — are indeed man-sized and powerful. Instead of utilizing the conventional BB pellet, these new guns fire a flanged slug which is pointed at the forward end and has a sort of lead skirt at the rear. This acts as an obturator to the air blast and assists materially in accurately guiding the projectile.

Best known of these air pistols are the Hy-Score, Crosman, Apache, and Benjamin. The Hy-Score is a direct adaptation of the old German Haenel air pistol and has much of the feel and appearance of the Luger. It employs a powerful spring that actuates a piston which, when released by the trigger, moves with in a tight cylinder building up air pressure which is vented into the barrel. The barrel has a firing chamber and is rifled exactly like a conventional handgun. Calibers are 177 and 22. The 177 caliber develops a velocity of 367 feet per second and approximately 3 ft. lbs. of muzzle energy. The 22 caliber, with its heavier pellet, travels 273 feet per second and has an energy at muzzle of 3 ft. lbs. These are somewhat trivial figures when compared with the 22 Short cartridge with its 54 pounds of energy. Nevertheless, the air pistol will consistently kill rats, sparrows, mice, and starlings and is a remarkably efficient practice weapon for the marksman who wants to keep in trim during the winter months. The accuracy of these pistols is very good. At 30 feet the Hy-Score pistol will shoot into a 1-inch ring with regularity. Plenty of weight, excellent adjustable patridge sights, man-sized stocks, fair trigger pull and passable balance place it in the target class. They are definitely of training value to the target marksman.

### **Custom Built Accessories**

Unfortunately, when a handgun is made, whether revolver or auto pistol, the grip must conform to a single rigid pattern. Quite oft en this means a poor fit. The need for custom built handgun stocks was seen a dozen years ago and as a result, we have a half-dozen manufacturers who turn out some excellent made-to-measure stocks. Foremost among these are the Southwest Cutlery and Manufacturing Co., Mershon Co., Walter Roper, and King Gun Sight.

In addition to the special stocks which are a boon to most marksmen, we have a select coterie of pistolsmiths who do precision rebuild jobs on the old 45 auto as well as short actions for our 38 revolvers, cockeyed hammers, broad triggers, trigger stops, click adjusting sights, ventilated ribs, and innumerable other jobs aimed at improving the shooter's score. Our leading pistol-smiths are Buchanan, Pachmayr, King and Harpe.

It is exceedingly interesting to note that the precision work of leading pistolsmiths was incorporated as standard manufacture by Smith and Wesson as of the latter part of 1948. The new Masterpiece line of K22, K32 and K38 revolvers now boast such improvements as a fast-falling hammer with a 33% shorter throw than formerly, wide hammer spurs, ribbed barrels, adjustable trigger stops, micrometered click adjusting rear sights, and increased weights. The 38 Military and Police also has incorporated in it the Masterpiece Short Action and the same hammer profile; other models of the S & W line which will shortly undergo much needed changes are the 357 Magnum, 38/44 Outdoors-man, and 1926 Model.

### **Match Shooting**

Match pistol shooting is organized excellently in this country. It is fostered by several thousand clubs and claims many members. Local, state, and national matches are fired annually and these contests have developed shooters second to none throughout the world. Matches are fired with 22, 38, and 45 caliber pistols; the distances are divided between 25 yards and 50 yards. One-third of the shooting is slow fire, two-thirds is timed and rapid fire. Scores run phenomenally high and competition is keen. About two decades ago the law enforcement peoples became interested in improving the shooting skill of their officers, and today, if you should select the ten ranking pistol men in this country, you would find seven were policemen, two civilians, and one soldier. Shooters are classified as marksmen, sharpshooters, and experts so the tyro does not have to compete against the shark to earn his prize.



**How to bag** crows with a Colt 22 automatic is illustrated, by Charley Askins.

### **Hunting with Handguns**

Service type handguns as well as all the target models make excellent hunting weapons. Game may be killed with any caliber from 22 to 45. It is simply a matter of not overmatching the cartridge against the game. To kill varmints successfully a handgun of hefty proportions, patridge sights, a barrel of not less than 4½ inches, (6 inches is preferable), a trigger pull of not more than 4 pounds, (3 lbs. is better), a well fitting and comfortable grip, plus sufficient wallop in the cartridge to perform good execution is needed.

As an example, the 22 long rifle will do a very satisfactory job on sparrows, squirrels and cottontails but it will not kill jackrabbits, larger hawks, or coyotes consistently. The best of our handguns for game taking is the 357 Magnum. This is the most powerful handgun cartridge in existence. It develops 1510 foot seconds of muzzle velocity and 800 ft. lbs. of muzzle energy. By comparison, the old 45 auto has a velocity of 860 foot seconds and a muzzle energy of only 378 ft. lbs. The 357 usually will kill such game as fox, hawks, coyotes, rabbits, woodchucks and a variety of similar varmints. With all its power the 357 is not recommended for such game as deer (although deer have been killed with the weapon) since deer are usually shot at comparatively long range, yet it is potent enough for mountain lion — generally killed at long range.

The handgun which ranks as an odds-on favorite with the police is the 38 Special. Smith & Wesson has long claimed that their Military & Police Model 38 Special revolver is used by more city police departments than any

other. Be that as it may, the 38 Special is the gun usually chosen. The New York State Police are armed with the Colt New Service 45 caliber, the Royal Canadian Mounted Police use the same weapon in a 455 caliber (of somewhat lesser power than the 45 Colt), the US Border Patrol carry the New Service in 38 Special caliber, and the Texas State Police pack the same weapon nickelplated in order to eliminate the nuisance of rust and to aid them in seeing their hardware quicker when taking a fast shot at night. The FBI has a variety of weapons, the most popular of which is the S & W 357 Magnum.

Just before the war, the various ammunition companies developed and loaded a variety of powerful new 38 Special ammunition. Remington-Peters brought out the 38 Special High Velocity which developed 1115 foot seconds (158 grain standard bullet) as against the old standard velocity of 870 foot seconds. Subsequently, Western-Winchester developed the 38 Special Super-X which had a velocity with a 150 grain bullet of 1175 foot seconds. These new loads were available with two types of ball: (1) lead bullet, (2) copper nose cap and a lead core.

For individuals who feel the necessity of keeping a gun for protection, such excellent guns as the Colt Detective Special, (38 cal, 2-inch barrel), S & W Military & Police (38 Special 2-inch barrel), S & W 357 Magnum with 3½ inch barrel, or the Iver Johnson Hammerless revolver (38 cal, 3¼ inch barrel, not currently in production) are suggested. These revolvers are short, compact, light and yet possess full sized grips, point naturally, and are quite reliable. Among automatics, the Colt 38 automatic, the Walther, Mauser, or Sauer 7.65 mm auto pistols are ideal for the purpose. These latter guns have the double action feature which makes them exceedingly fast to get into action.



**A good holster** is as necessary as a fine gun. Here is a representative assortment of some of the best and most practical types as manufactured by S. D. Myres Saddlery Co. of El Paso, Texas.

### **Future of the Handgun**

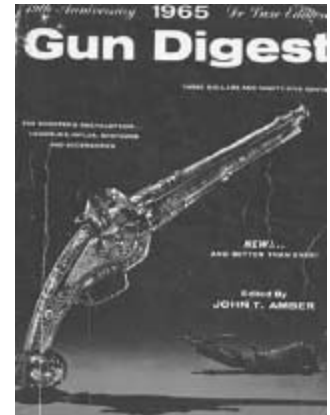
The revolver has been with us, substantially unchanged, for more than one hundred years. The automatic pistol represents the logical evolution from this obsoleted powder burner. I have not the slightest doubt but that in the not too distant future the automatic will relegate the revolver to the museum shelf.

The ideal pistol has not yet been built. However, it is most assuredly coming and will incorporate among other improvements these and other advancements:

Barrel and action will be so low as to extend in prolongation of the forefinger. Such a pistol would develop little or none of the objectionable "turning motion" during recoil, so common in present day handguns. Such recoil as did occur with this new weapon would be readily absorbed, due to the barrel being in direct prolongation of the wrist-and-forearm axis. Present handgun sights are deplorably crude. Recently, however, I saw an encouraging indication of what is coming. This was a new handgun sight looking exactly like the Lyman 48 receiver sight for rifles. This sight has micrometered click adjustments for windage and elevation. Faster falling hammers are badly needed. The hammer on the revolver falls too far, too slowly, and strikes so hard the gun is actually moved by the impact. The mechanical principle upon which the sear operates is another hundred-year-old relic much in need of modernization. The Tompkins is the only handgun

made in this country with a truly modern trigger system. That this system, or one of similar good characteristics, will be adapted to our coming crop of automatic pistols is consistent with the progressive trend in the handgun field.

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## 45 Auto Pistol

■ Robert A. Burmeister

THE 45 automatic — enigma of pistols — sturdy companion of our armed forces from the days of Black Jack Pershing hot after Pancho Villa in the deserts of the Southwest, and to the mud and fury of Chateau Thierry, to the shell holes of Anzio beachhead, to the volcanic dust of Iwo Jima, to the frozen night patrols at Pork Chop Hill in Korea. Sometimes carried and not used; sometimes a last defense in some far corner of the world; the choice of FBI man Purvis, nemesis of Dillinger; and the choice of many another law man. Universally admired for pure perfection in engineering, for its flawless functional design, for its brutish power, but always about it one sad doubt — accuracy?

The difficulty of shooting the 45 automatic with passable accuracy has been written about many times. Ex-servicemen will oft en make appropriate caustic comments. Target shooters, usually, enjoy only partial or intermittent success with this old war horse, yet the factors or components of accuracy that are responsible for this curious situation are seldom evaluated realistically. Another aspect which confuses and misleads is the all-too-common comment that most of the better handguns will shoot closer



than any shooter can hold. True enough, of course, but a lamentable distortion that only conceals a most important fact — that fact is that whatever inaccuracy exists for ammunition or gun will further enlarge the group a shooter is capable of holding, and in the case of the 45 the enlargement may be prodigious. The components of accuracy are three:

- 1) That of the shooter.
- 2) That of the ammunition.
- 3) That of the gun.



**Fig. 8** — Issue 45 with plastic grips. Parkerized finish, an even silvery gray, is handsomer than most reblue jobs, which destroy the clean, honest lines of machining.

These components are cumulative, that is, whatever group size a shooter is capable of making with perfect ammunition and a perfect gun will be enlarged by any inaccuracy of the ammunition and will be further enlarged by the inaccuracy of the gun.

This is shown graphically for one 45 automatic in [fig. 1](#). The largest circle represents a 17.9" group at 50 yards, which is attainable by a shooter who is capable of shooting into a 3.5" group at 50 yards with a perfect gun and perfect ammunition but who in this instance has ammunition capable only of a 3.8" group at 50 yards, and a gun capable only of a 10.6" group at the same distance. The shortest arrow "A" in [fig. 1](#) represents the radius of a 3.5" diameter group and shows how far a bullet can diverge to the right of

aiming point due solely to optical error of aim by shooter (for simplicity of treatment it is assumed that the shooter makes no error due to erratic gripping, flinching, or poor trigger release). Arrow “B” represents the radius of a 3.8” diameter group and shows additional possible divergence to the right because of error of ammunition. Arrow “C” represents the radius of a group of 10.6” diameter and shows yet another possible divergence to the right because of error of gun, thus the three arrows accumulate to make a group size of 17.9”. While [fig. 1](#) shows only divergences to the right, similar divergences could occur in any other direction. Also divergences can cancel one another in whole or in part. Nevertheless the accumulation in one direction such as shown in [fig. 1](#) expresses the worst that can happen.

Statistical analysis will quickly point out that such an accumulation of errors, all in the same direction, does not happen oft en. Quite true, but it happens often enough to account for many a poor score. It should be remembered that the foregoing is based on the premise that there is no error due to erratic gripping, flinching, or poor trigger release, etc., which in effect are complementary to “A,” the optical error of aim, and if these were included the maximum group size would be still larger.

Values for [fig. 1](#), namely 3.5” for optical error of aim of shooter, 3.8” for error of ammunition and 10.6” for error of gun were obtained as follows:

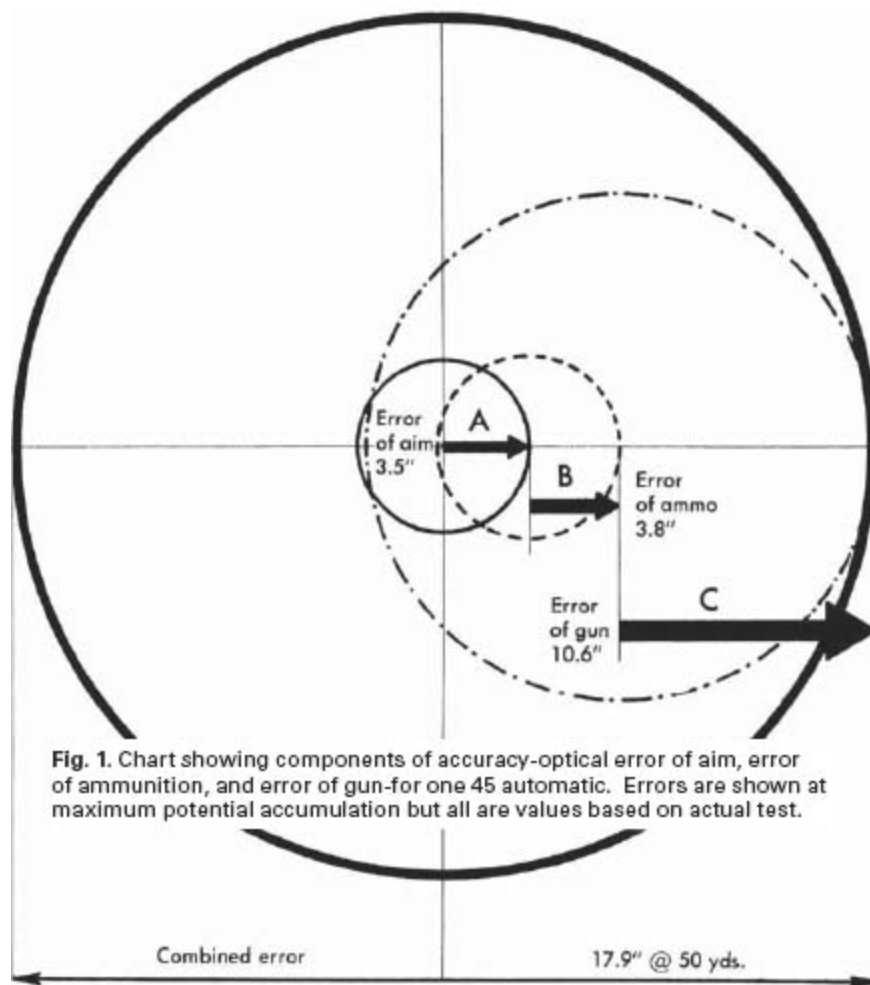
### **Error of Shooter**

Individual shooting skills vary considerably, but every shooter’s performance depends on:

- a) How well he can align his sights with the target, which we’ll call optical error of aim.
- b) When sights are aligned how well he can pull the trigger without disturbing alignment (and, of course, how well he resists flinching, accommodates recoil and muzzle blast, etc.).
- c) How uniform his grip or hold is from shot to shot.
- d) How accurately he can adjust his sights with due regard for ballistics, range, and his hold.

As stated before, items such as (b), (c), and (d) are not treated in this article but item (a), optical error of aim, is considered here as a basic component of accuracy — a principal and assessable error of the shooter. The War Department Basic Field Manual FM 22–35, Automatic Pistol Caliber 45, M1911 and M1911 A1, contends that a shooter should be able

to make a dime-sized group at 30 feet (equivalent to 3.5" at 50 yards) by use of a special fixed rest for the pistol and an aiming test called a sighting exercise. In this "triangulation" test the pistol is held motionless in the fixed rest and an assistant moves a bull's-eye on a blank target until the shooter, looking over his sights, declares alignment has been attained. The position of the center of bull's-eye is then marked and the test is repeated. After three trials the marks should make a dime-sized group. A seasoned target shot will do better than the criteria specified but the average shooter will do well to equal it. As an interesting comparison the aiming tests made as above and reported by Donald E. Fischer in the March, 1961 *The American Rifleman* showed that his best 5 "shot" groups with a Hammerli free pistol at 50 meters (54.7 yards) were approximately  $\frac{3}{4}$ " in diameter. Since this free pistol has about double the sighting radius of the 45 automatic, plus precision sights very much superior to the crude military sights of the 45 auto, it is apparent that the criteria of 3.5" at 50 yards for optical error of aim is realistic.



### Error of Ammunition

In an excellent article entitled "National Match 45" by Colonel Jim Crossman, U.S.A., and Major Bill Brophy, U.S.A., which appeared in the August 1959 issue of *The American Rifleman*, the following table appears:

Fig. 2. Accuracy of various lots of ammunition.

Groups were obtained by using a special heavy barrel in a rifle action and firing from a machine rest — hence shooter's error is absent, likewise error of gun is virtually nonexistent. Note variations in group sizes of various lots of ammunition even though these lots (except handloads C and D) were selected for accuracy. Service ball lot 1885, which gave a group size of 3.8" at 50 yards, was chosen for [fig. 1](#).



**Fig. 4.** – Pre-War commercial 45 has King sights and belt clip (arrow).



**Fig. 5.** – Government issue hybrid 45 auto. Springfield receiver, Colt slide and barrel; assembled at Rock Island Arsenal. Has low mounted 1/8 Micro sights.

TABLE A		
Groups fired from a single accuracy weapon; range 50 yds.; size of 10-shot group measured from center to center of widest holes; selected ammunition lots.		
Ammunition	Average Group Size for 3 ten-shot groups	Number of guns tested
Commercial "A"	0.9"	106
Handload "A"	1.7"	12
Service ball, lot 1887	2.4"	10
Service ball, lot 1806	2.5"	8
Handload "B"	2.5"	21
Service ball, lot 18407	3.4"	4
Service ball, lot 18451	3.4"	21
Commercial "B"	3.5"	9
Service ball, lot 1885	3.8"	14
Handload "C"	7.9"	5
Handload "D"	8.9"	5
Same, except 3 groups fired from each lot from each of 3 accuracy weapons.		13
Ammunition	Average Group Size	21
Service ball, lot 1854	2.4"	6
Service ball, lot 6445	2.7"	5
Service ball, lot 18258	3.0"	6
Service ball, lot 1686	3.1"	15

Fig. 3. Accuracy

Type of gun	Average of 3 groups of 10 shots		Average of all guns, fired 3 ten-shot groups per gun
	Worst gun	Best gun	
1959 NM	5.3"	3.3"	4.3"
1956 NM	5.7"	3.3"	4.4"
1955 NM	6.2"	3.6"	4.7"
Gunsmith A	5.7"	3.4"	4.8"
Gunsmith B	6.2"	2.8"	4.9"
Gunsmith C	8.2"	3.5"	5.6"
Gunsmith D	8.7"	3.9"	5.8"
Gunsmith E	8.6"	4.2"	5.8"
Gunsmith F			6.4"
Gunsmith G	9.7"	4.6"	6.6"
Gunsmith H	8.4"	5.8"	7.0"
Gunsmith I	11.7"	4.4"	7.2"
Gunsmith J	10.5"	5.1"	7.5"
Gunsmith K	10.8"	4.4"	7.7"
Gunsmith L	13.6"	5.1"	8.8"
Gunsmith M	15.9"	5.0"	9.5"
Gunsmith N	16.3"	4.8"	10.6"

Fig. 3. Accuracy of various guns.

### Error of Gun

In the previous sections it has been shown that at the 50-yard range the optical error of aim and the error of ammunition can account for 3.5" and 3.8" respectively. Error of gun for [fig. 1](#) was derived as follows: Crossman and Brophy tested 5 government issue 45's for accuracy and found that with ammunition rated at 3" the group sizes for the 5 guns were 7.1", 11.8", 6.5", 5.1", and 13.6" respectively. Taking the poorest of these at 13.6" and subtracting ammunition error of 3" the gun is therefore capable of 10.6", the value used for [fig. 1](#). Note that the best of these guns — the 5.1" one, is quite accurate.

[Fig. 3](#) gives the results of the Crossman and Brophy tests on National Match and other accurized guns — of the 281 guns tested the worst was 16.3" and the best was 2.8".

It is apparent that there is a large variation in accuracy among 45 automatics! This is readily appreciated inasmuch as there have been eight different manufacturers of them in the past 50 years. As to commercial models my first experience was with the one depicted in [fig. 4](#) — a pre-war model. After putting several thousand rounds through this gun (mostly government ammunition) I wrote to the late J. H. Fitzgerald, Testing Engineer for Colt's, telling him that I could do much better with my revolvers than with the 45 automatic and wondered whether I already "shot out" my 45 or whether it was basically inaccurate. His reply sums up the situation admirably!

He stated: "The life of the 45 barrel, for extreme accuracy, is between 5 and 6 thousand shots. In the case of the revolver, the writer has one that has been fired over 150,000 shots, and fired it over 100,000 accurately and without any new parts being installed since the arm left the factory. Extreme accuracy in the 45 automatic requires a match barrel and also a proper fitting bushing that will fit perfectly both slide and outer surface of the barrel. A tight link and link-pin is also necessary. The lower part of the link should correctly fit the slide stop of the pistol. The wear on these parts will, of course, correspond to the wear on the inner surface of the barrel after approximately 5000 shots. For extreme accuracy, they should then be replaced. Trigger pull of not less than 4½ lbs. is recommended by the factory, because after wear the pull may change to about 4¼ lbs."

[Fig. 5](#) shows an issue 45 (equipped with new sights, of which more later); note that in comparing the fit of slide to receiver ([fig. 6](#)) of this gun with that of the commercial model ([fig. 4](#)) there is a marked difference. Yet the GI 45 of [fig. 5](#) is quite accurate, even with its relatively loose slide.

### **What to do About Your Issue 45**

About this time the reader may want to check out his own 45 to determine how much work may be necessary to improve accuracy. The first step is to run an accuracy test. This is best accomplished by using a machine rest, but if such is not available an improvised forearm rest may be used. An economical and effective rest may be made by constructing a special raised arm rest on a heavy wood lawn chair, or, a bench rest may be utilized. The use of such rests combined with suitable padding, a two-handed hold, and good weather will give results comparable to the machine rest. Testing must be done with ammunition of known accuracy such as

commercial target ammunition or high grade custom handloads. (I have found a good load available locally at \$3.00/50 having a 185 gr. H&G semi-wad-cutter cast bullet and 3.5 grains of Bullseye powder. There are equally good loads offered in your area, I'm sure.) Don't waste your time with the usually erratic "hard ball" surplus GI ammo or by shooting off hand; the latter will only confuse you as you will be testing a combination of yourself and the gun.



**Fig. 6** Rear view of guns shown in figures 4 and 5. Note close fit of slide to receiver on pre-war gun at left compared to loose fit (pointer) of slide to receiver on government issue hybrid Springfield-Colt on right. This looseness of fit is not as important as fit of barrel, link, link pin, bushing and slide.

Typical tests of two 45's are plotted in [fig. 7](#). Note that at 20 yards one 45 gave a tight five-shot 1½" group, all in the black, whereas the other spread three shots over 6". The first gun is the one shown in [fig. 5](#); it has 1/8" low-mounted Micro sights with front sight staked and silver soldered in place by a custom pistolsmith who also reduced trigger pull to a smooth 4¼ pounds. In other respects this gun is as issued, no "accurizing" as such, so it is suitable for field and target work. The second gun, [fig. 8](#), an issue 45, is obviously not in the same accuracy class as the first and is therefore subject to an "accurizing" job involving new barrel, new bushing, link, link-pin and possibly tightening slide, in addition to new sights and trigger pull reduction.

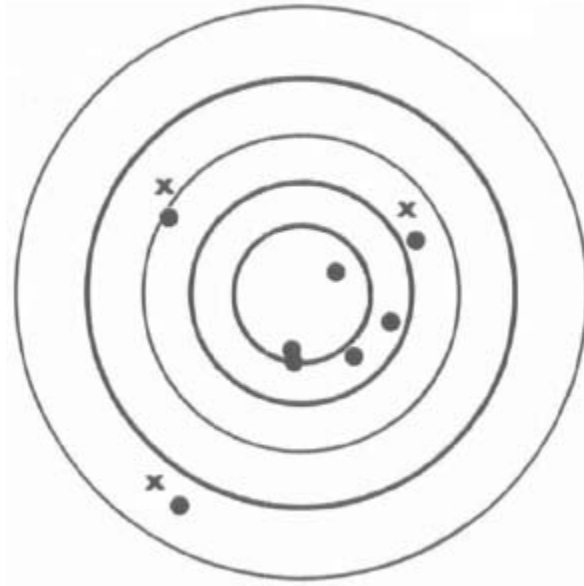




**Fig. 9** — Details of belt clip. Grip is hollowed to accommodate clip.

Ratings of these guns were based on not one target as shown but also on repeat tests which confirmed results. By testing a gun in this fashion the shooter can determine just how much “accurizing” and improving is desirable. Sometimes a lot of work is necessary, but fortunately some pistols are accurate enough as issued. The writer regards a 45 capable of 2” groups at 20 yards or 5” groups at 50 yards as entirely satisfactory for field work.

New sights are an absolute must on issue 45’s, for the old military sights are much too small for accurate sighting. Similarly the trigger pulls on most issue 45’s are atrocious — rough, grating and running between 5½ and 7½ pounds. Even an expert cannot shoot such guns well, and it is amazing how much better a 45 will shoot if 1/8” sights are installed and the trigger pull is reduced and smoothed. (Of course target ammunition must be used.) The sight and trigger pull work referred to above for the [fig. 5](#) gun cost \$22.50; that included the furnishing and installing of 1/8” Micro sights, the rear sight low-mounted in milled recess, the front staked and silver soldered in place; trigger pull was reduced to 4¼ pounds. This work, done by a custom pistolsmith, is beyond the capability of most home workshops.



**Fig. 7** — A test target showing difference in accuracy of two 45's. One ([fig. 5](#)) gave a tight 5-shot 1½" group, all in the black, the other 45 (a strictly issue model), spread 3 shots over 6" (these three marked X). Range 20 yards, forearm bench rest used.

For some field work, and as a substitute for a holster, a belt clip may be used as shown in fig. 9. Note that no alteration of the gun is required except for hollowing out the underside of the right grip. The clip is made of 16-gauge steel, shaped and bent as shown. The clip is not as secure as a holster but on the other hand it takes less room, thus preserving one of the salient features of the 45 — its handy, compact, functional design. The writer abhors any alteration of a 45 which clutters it up or makes it unhandy — alterations such as huge, high-mounted sights, ribs, front sights on forward protruding bars and monstrous “anatomical” grips. Maybe these do help in raising the score — but they look like hell and destroy the practicality of the weapon.

Take another long look at your old war horse — it may be better than you think.

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## Oddball Hardballs

For well over a half-century we have been blessed — or bemused — by the 45 ACP, so there's little left to say about it, right? Wrong. This collector describes in detail a number of unusual GI 45s, guns few shooters know exist. ■ **Mason Williams**

**I**N SHOOTERS' parlance "hardball" refers to the GI cal.-45 Colt automatic pistol that fires GI ammunition — loads with full metal jacket bullets. Usually these handguns are pretty much as-issue jobs, or else they are the finely finished Match Target pistols available from the Director of Civilian Marksmanship via the National Rifle Association. Seldom has a better dollar value been offered the American handgun shooter. This article, however, is not about match target handguns, regardless of their capabilities. Rather, I would like to ramble on about some of the goofed-up 45 ACP pistols that I have run into.

In most businesses it takes a lot of brains and initiative to foul up on a production piece, and when such happens the result is customarily sold at a premium price as a "one in a million" item. The rate of goof-ups in the arms industry, I believe, ranks as one of the highest in the world, particularly during wartime when the primary object of production lines is to get as

many pistols as possible into the hands of our men. When the scrap is all over, Ordnance sits down and sorts through those which remain, then picks out the unusual items and does something with them. Now and then one gets through them, though, and that is what this article is all about.

Now, I'm sure that somewhere among my readers there lurks an overzealous policeman or Federal officer who wants to get a Medal of Commendation. Let me state for the record that all the oddballs mentioned here are strictly — but strictly — legitimate. So relax and forget about the medals. Also, at this point, a word to collectors. None of these is for sale. If anyone has a real oddball I sure would like to hear about it. I'm not an avid collector but when an unusual Model 1911 cal. 45 ACP comes my way, I buy it if it will add to my basic collection and to my over-all knowledge of 45s. Many 45s that have been reblued, altered, etc., have no value to me. I am interested only in the more unusual “as-issue” oddballs. The thing that fascinates me is how these pistols get through the countless Government checks, inspections, etc., to finally fall into the hands of the American shooter. A lot of these pistols are simply curios, while others are genuine collector's items. Oft en it is difficult to draw the line. I will not attempt to do so.



**This Remington-UMC** pistol has no serial number and is without any inspector's stamps, assembler's stamps or other markings — a real “lunch pail” pistol.

I must be vague about certain details here, because the entire history and background of the 45 ACP pistol is filled with grey areas. Records no longer exist or have been lost. Many of the men who worked on the original 45s are no longer with us. Much of the information is secondhand. So please do not be too critical if I appear to sluff off some details. Most of the time I will come right out and say I just don't know. Bear with me and let's have some fun trying to figure out some of the goofs that I know about.

### **Rem-UMC**

Let's start off with one I purchased from the Director of Civilian Marksmanship. Now the DCM is about as official an agency of the Government as one can find — and anything that is officially an agency of the U.S. Government dislikes anything that does not fit the prescribed specifications. Let me try to trace — theoretically of course, because no one really knows — the origin of this particular 45 Model 1911 and/or Model 1911A1.

Way back around 1917 the U.S. Army needed 45s, so among other contractors they authorized Remington-Union Metallic Corp. to manufacture as many 45s as they could. Remington-UMC was given a block of serial numbers entirely separate from the regular run of numbers. These commenced with number 1 and ended with number 21,676. This much is known.

The frame of this 45 meets every requirement as one of the Remington-UMC frames, starting off with the inspector's initials, "EEC," just above the magazine release on the left side of the receiver. The phrase "United States Property" is in the correct place (for this specimen) on the left side of the frame ahead of the trigger guard. So far all is well.

THIS IS THE ONLY INSTANCE I HAVE EVER RUN INTO OF A  
FIREARM CARRYING TWO NUMBERS. THE INTERESTING POINT  
IS THAT BOTH NUMBERS FALL WELL WITHIN THE NUMBERING  
SERIES ASSIGNED TO REMINGTON-UMC BACK IN 1917

The numbers on these pistols should be stamped just above the trigger on the right side of the receiver. Mine has No. 1545 all right, which is correct for a Remington-UMC. Two Ordnance bombs are stamped side by side partially over and partially below the "No." preceding the serial number. Directly below these ordnance bombs and a bit to the left is stamped 10210,

in slightly smaller numerals. This is the only instance I have ever run into of a firearm carrying two numbers. The interesting point is that both numbers fall well within the numbering series assigned to Remington-UMC back in 1917.



**The Savage Arms** “slide” pistol, rarely seen today. To the author’s knowledge, Savage Arms did not produce complete pistols.

My thought on this double numbering is that this receiver came off the line for issue, and then for some reason was held out and possibly used as an instruction control receiver. This could well have been the case because the low number 1545 shows this was one of the first production receivers off the line. Later on, pressure for more and more pistols could have forced the company to re-number the receiver and re-issue it for service. This is all guesswork. I don’t know. I have examined all the stampings under a glass and they appear to be of the same approximate vintage. This receiver came to me completely equipped as a Model 1911 frame with the short safety spur, flat mainspring housing and every indication that it was original throughout.

If you think one error is plenty for one pistol — hold on to your hats. The slide is standard, of Colt manufacture, and meets all specifications of the Model 1911A1 slides. On the other hand, all slide parts appear to be Model 1911 type. The left side carries all the correct stampings for such a slide, but there is absolutely nothing on the right side of the slide — not even serrations, despite the fact that the left side does carry serrations. I have

miked the slide and it meets specifications. Obviously someone failed to put this slide through the final stamping on the right side, but how the serrations were left off remains a mystery. It's a weird looking pistol viewed from the right side.



**Right side** of the double-numbered pistol, grips removed to better show double numbers and the two Ordnance bombs, the latter stamped in the correct location. The two numbers fall within the numbering block assigned to Remington-UMC.



**A dummy**, hard rubber pistol used for training and guard duty. This particular pistol has "U.S. Navy" stamped on the butt of the "magazine."



**The X-number 45.** Such pistols were machined and rebuilt at Government arsenals. Williams believes that all rebuilt pistols carry the eagle over S17 just above the magazine release on the left side of the frame of the pistol.

This pistol was obviously brought in after World War II for rebuilding. The finish, a relatively new and perfect parkerizing, is clean, light and unused. Plastic grips were added. How such an odd combination ever got through without someone picking it up I don't know. As I mentioned above, this pistol was purchased by an NRA member from the DCM just a couple of years ago. No other pistol that I own has so many oddball things wrong with it.

AS FAR AS I AM CONCERNED THESE DUMMIES ARE SO  
REALISTIC THAT IF THE LIGHTS WERE LOW OR VISIBILITY BAD  
I CERTAINLY WOULD NOT ARGUE WITH A MAN SHOVING ONE  
AT ME

### **45 Dummy**

Compared to this one-in-a-million pistol let's look at another weird 45. To confuse the issue even more, this 45 is not a pistol at all. What is it? It's a dummy 45 pistol made of hard rubber, plus solid lead, to give it weight so that it duplicates the hang and feel of the conventional 45 ACP. The butt is stamped U.S. Navy. I spent four full years in the Navy during the Second World War and I saw just one of these pistols. It was kept by the Executive Officer for training purposes. Every now and then some fortunate seaman would be permitted to drop it into his empty holster and go on guard duty. I



have heard men speak of these dummies, and I understand many were used for hand-to-hand combat training during the war. As far as I am concerned these dummies are so realistic that if the lights were low or visibility bad I certainly would not argue with a man shoving one at me. Despite the fact that they cannot fire they make an excellent blackjack or pacifier. I would hate to be clobbered by one. One of my friends back from China in 1947 gave it to my son to play with. One day he and a friend were repulsing Indians — the odds were something like 6000 to two — and he threw it at the screaming savages. I happened to witness this and, on picking it up, realized what it was. Unfortunately, the hammer broke off during the breaking up of the Indian charge. Since then it has been carefully protected. Being martially marked it will remain in my collection of 45 ACPs.

### **Lunch Pail 45**

I now come to a real fouled-up 45 ACP — one that I have named my “lunch pail” 45. This pistol also started out in life as a Remington-UMC handgun — at least to the best of my knowledge. The slide meets every requirement of that brand, including all component parts of the slide assembly.

The odd thing about this pistol is the receiver. It has the customary “United States Property” stamping on the left side of the receiver, ahead of the trigger guard, but that is the only mark on the frame. No serial number, no inspector’s initials, no marks of any kind appear. Again the receiver has been assembled with parts that meet the specifications of a pistol of that manufacture and age.

The outside shows considerable holster wear, a police officer having carried it for nearly 30 years. I doubt if it has been fired more than a hundred times. The inside parts show little or no wear and they all appear to be original.

The slide and the receiver assembly appear to have been together for a good many years — in my opinion they are the original assembly. I can’t be certain, of course, but I imagine this receiver was “borrowed” from the line after completion but prior to final acceptance and stamping. The parts were probably also brought home piecemeal in the lunch pail every evening. With the millions of parts then coming off the line each day it’s a wonder more of this style don’t turn up. If you ever run into one I suggest you take it to a local authority and ask them to assign it a number; then you will be in

the clear. A lot of these pistols — so I am told — were given to foremen and heads of departments after the war as a token present or as a memento so don't assume that every one was stolen.



**One of the original** 1911 pistols with the short spur used before the Cavalry re-designed the hammer. Note location of the serial number. Only the first few pistols had the number in this place, Williams believes. By serial number 10,000 the number was back over the trigger.

### **Savage 45**

Another oddball that you will run into occasionally is the “Savage” variation of the Model 1911 45 pistol. Now this has nothing to do with the Savage Arms Corp. in Westfield, Mass. In 1917–1918 the demand for 45 pistols was so great that the government gave contracts to any firm which could produce them. The records are a bit fuzzy but it appears that the A. J. Savage Munitions Co. of San Diego, Calif., was given a contract to manufacture complete Model 1911 pistols. From what I can find out they only made slides before the contract was cancelled in 1919. It would appear that these slides, or at least some of them, were accepted by the government so that, after the war, these slides were incorporated into rebuilt pistols. You can identify these Savage slides by the lettering, all in one block, on the left side of the front part of the slide. This reads:

PATENTED DEC. 19, 1905

FEB. 14, 1911, AUG. 19, 1913

## COLT'S PT. F. A. MFG. CO.

Directly to the rear of this lettering is a flaming bomb with a large S inside the bomb circle. The right side of the slide carries the standard stamping "Model of 1911 U. S. Army." While this variation may factually be considered a "production" model they are seldom encountered. Few people have ever seen one.

### **X-Number 45s**

Another seldom-seen variation is the X number pistol. As I understand it these pistols were brought back into certain government armories, stripped down and rebuilt. From what I can determine all of the receivers were machined flat and cleaned on both sides to remove all lettering and numbers. After blueing the receivers were stamped on the right side with an X followed by a new serial number. Those serial numbers I have seen were low, mine being 1923. This new number is found above and behind the trigger. Above the number is the phrase "United States Property."

On the left side of the receiver — at least on my pistol — is a sitting eagle. Below this is S17. The eagle and the lettering are quite small and you need a good glass to make out the details. They are located directly above the magazine release, slightly higher than the spot where the regular inspector's initials are customarily found.

I have seen these pistols with the receivers machined so much that the naked eye can readily see the difference between the thickness of the X frames and a new frame. If you run into one of these X numbered 45s, examine the slide for machining — it might well be original and legitimate.

### **Low Number 45s**

Every now and then you will see one of the original low number Model 1911 pistols. The first 50,000 or so were superbly finished. They stand out like a flashlight among candles. The very early ones, carrying numbers down around 10,000 or lower, are beauties — too good to shoot, in my opinion. So far I've seen only one with a misplaced serial, that one number 6324, so-stamped far ahead of the trigger guard. This on the right side of the receiver, of course, directly opposite the legend "United States Property" stamped on the opposite side.

I have run into quite a few of the old World War I pistols carrying serial numbers that date them back to 1916, 1917, 1918 and 1919, which have

been entirely re-finished, parkerized and given new inspector's initials. I don't know when this was done, but from the looks of the finish I'd guess sometime after World War 2. Those I've examined closely show little signs of wear, indicating that the work must have been done fairly recently — or the pistols released lately. These are good buys for the man who wants a rugged handgun.

In conclusion I'd like to point out that many 1911 and 1911A1 pistols may be found in variations that add considerably to their value for collectors. If you find one of these oddballs ask a collector about it — it may be of some worth.

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1978



## All Purpose Defense Gun: Colt 45 Auto Or Charter 44 Bulldog?

Apart from their considerable recoil, the choice of a defense sidearm propounded here covers two vastly different handguns — and mandates a serious, sustained program to master either. ■ Richard Allen

**I**F YOU MAKE no secret of your interest in guns you may, like me, be occasionally asked which handgun is best for self defense. Since I live in a city the question pertains to self defense in cities, against people. Self defense for woodsmen, against dangerous animals, say, is another matter, and one I know little about.

Of course I have an answer to this question: the Colt Gov't Model 45 automatic — or another gun so chambered. The list of virtues is too well known to bear repeating here. (If you are new to guns, get *The Complete Book Of Shooting*, edited by Jack O'Connor and read the handgun section by Jeff Cooper. Also see *Cooper On Handguns*, by Jeff Cooper. However, the latter book was written more for informed handgunners than for beginners. James D. Mason's excellent new book *Combat Handgun Shooting*, published by Chas. C. Thomas, Springfield, Ill., offers much

information to the novice shooter. \*See our Arms Library pages for source information, etc.



For most cases the obvious answer is the right one, but there are situations where another model deserves serious consideration: the Charter Bulldog 44 Special, which has three advantages: concealability, price and safety.

Let's consider a gun to be carried on the person. Its two major requirements are stopping power and hide-ability. Unfortunately, these are conflicting requirements; powerful guns tend to be big. Some of you will think about having several models: a big 45 auto for use at home or in the store; a Charter Bulldog when the 45 can't be concealed; a 5-shot 38 when the Bulldog can't be hidden; a Hi Standard Derringer when anything else would be too big.

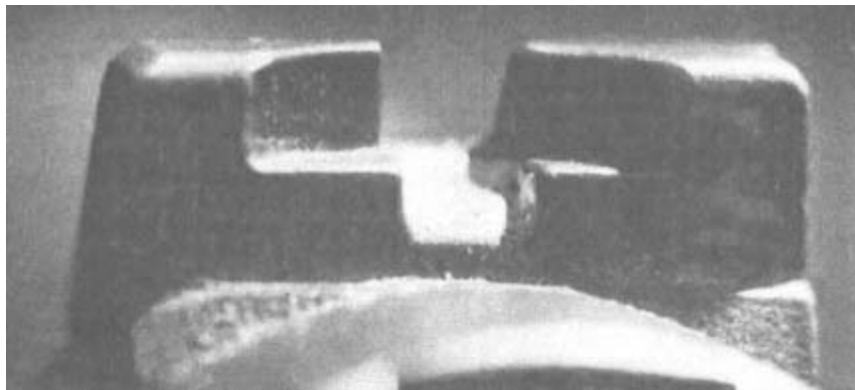
It's only natural for us to think that way, but remember the person who asks your advice will usually want only one gun. He or she is unlikely to want or to be able to afford several handguns or the trouble and expense of learning to shoot so many different models. He should have a spare, in case his gun needs repairs, but he may not. If he does it should be as much like his main guns as possible. Those of us who own several guns rarely have two alike, which certainly applies to me. But the man who isn't interested in guns as such has the advantage. Having learned to shoot on a particular model he can simply get a spare just like it.



Despite the thickness of the Bulldog's cylinder, the smaller grip makes the Charter easier to hide, and it can be made even more concealable. The smaller grips of the Charter Undercover 38 Spl. can be used on the 44. True, felt recoil is increased and, unless the shooter has small hands, the smaller grip will be awkward and practical accuracy may suffer.

Colt 45 ACP with minimum alterations — safety from Armand Swenson, sights from King Gun Works. The Bulldog has the smaller Undercover grip, for greater concealability — and possibly more awkwardness in handling.

Here is the major advantage of the Bulldog: it may be carried when the big 45 — if any — has been left home because it's too big. As noted above, that reasoning can be carried further, but somewhere you have to draw the line. At some point you have to say, "This is the smallest gun suitable for all-round self defense. If I may at some time need a smaller gun I'll have to get two guns to defend myself adequately."



There is, of course, no hard and fast place to draw the line. It may be argued that nothing less than a 45 auto is really good enough, that anything less is a desperation measure. It can also be argued that the small-frame 38s actually belong on the big gun side on the line. I choose to draw the line right under the Charter Bulldog.

## **Stopping Power**

Why there? Stopping power. Stopping power is the ability to put a man out of action immediately — not kill. It will do you no good if your attacker dies two days after you shoot him, or even if he bleeds to death two minutes after being shot. Jeff Cooper (op cit) estimates the chances of downing a man with a solid body hit at 19 times out of 20 with a 45, 50–50 with a 38. The 44 Bulldog is somewhere in between.

Where in between? Mr. Cooper can estimate, from the teachings of experience, about how good the 45 ACP and the 38 Spl. are. The 3” barrel 44 Spl. is relatively new, so we don’t have much experience yet. The best estimate we can make is by using the Hatcher Scale of Relative Stopping Power or other similar formulas. † See GUN DIGEST, 30th/1976 ed. for Ken Walters “Handgun Stopping Power” (p. 260)

The Speer Reloading Manual, No. 9, gives the muzzle velocity of the factory 44 Spl. with 246-gr. bullet from a Bulldog at 689 foot seconds (fs). The 44 Spl. bullet’s true caliber is .429”, say .43”. The Hatcher scale gives the Bulldog 88% of the 45 Auto’s stopping power. The 2” barrel 38 has less than half the 45’s stopping power. As best we can estimate the Bulldog is “almost” as good as the 45. The small-frame 38s are only a little easier to hide than the Bulldog, yet their stopping power is obviously a lot less.

Stopping power is also why I considered the Colt 45 and the Charter 44 in the first place. Guns with less recoil may be easier to master — but provide only an illusion of effectiveness. The heavy recoil does make proper handling more important. A good instructor would be nice, but most people must learn to shoot without one. The books mentioned above are the best substitutes I know of.

So much for S.P. and concealability. What other differences are there between the 44 and 45? Safety, problems in proficiency, price and firepower.

## **Safety Factors**

It is generally felt that revolvers are somewhat safer in the hands of a semitrained man, yet the man or woman who takes the trouble to really master a gun can handle an automatic safely. Regrettably, there are too many who buy a gun, fire a few shots, and put it away in a drawer. No gun is really likely to do that kind of owner much good, but he is less likely to



shoot someone — or himself — accidentally with a revolver. Another point for the Bulldog.

Price and learning problems are related, since the gun's "cost" should include learning to shoot it. This includes ammo and, possibly, a 22 rimfire substitute for cheaper training.

Here we face a small difficulty. The prices I quote will probably have gone up when you read this, but the proportions should remain about the same. See our catalog pages for various makes and their current prices.



**Shooter's view** of King Combat Sights, front and rear.

### **Colt 45 Auto**

The Colt 45 ACP (various versions) retails for about \$213 today — mid-1976 — but that's just the beginning. The gun isn't ready for use as purchased, and there are all sorts of recommended alterations to consider. For minimal self defense I consider two indispensable: a new thumb safety, and new sights.

The regular thumb safety is too small, I feel. When you have to grab the gun and thumb the safety off in a hurry there is too great a chance you'll fumble the job. after years of experience I usually hit the issue safety OK, but I'd hate to stake my life on it. Furthermore, the fear of fumbling is a temptation to thumb off the safety whenever something goes bump in the night That's how accidents happen. A good thumb safety is made by Armand Swenson (Box 606, Fallbrook, CA 92028) at \$20 for a right-handed type or \$32.50 for the dual form (ambidextrous), plus \$15 for your local gunsmith to install it.

Recent developments in the art of combat shooting have taught us the value of a quick sight-pickup, even at close range. after extensive practice good shooting may be done by merely looking over the top of the gun, but we're considering the beginner. Sights suitable for quick line-up in dim light are essential.



**Charter Arms Bulldog** with the Charter 38 Undercover. The Undercover seems a lot smaller when you handle both guns, but it is only a little easier to hide — and it has a lot less stopping power.

The best I know of are the King Combat Sights (King Gun Works, 1837 W. Glenoaks Blvd., Glendale, CA 91201). Again, the King sights must be installed at extra cost on the 45 Colt. The King sights are better than the issue sights on the Charter but it would be impractical to put such sights on the 44 Spl. King sights are \$20, say \$10 for gunsmith installation.

## **Ammunition**

Now, ammo. Two hundred factory rounds through a new automatic are a minimum for checking out the gun and for a minimal training program as well. Four boxes of 50 at \$11 each, \$44.

Some of you may have access to reloaded ammo, which can be found sometimes for \$5 or so per 50. Such loads are fine for further training, but the gun must be checked out with full power, self defense ammo.

Our cost so far is:	\$213
Swenson Safety, installed	35
King Sights, installed	30
200 rounds 45 ammo	44
Total	\$322

For further training the Colt 22 Conversion Kit (\$118.50) is almost a necessity. 500 rounds of 22 ammo (Long Rifle) go for about \$14, thus adding \$132 more to the \$322, or a new total of \$454.

The 22 kit is the reason I haven't mentioned the Commander Model. The Commander is only a little bit easier to hide than the Gov't Model, but it suffers a major disadvantage — it won't take the 22 unit.

Note that I have considered only the cheapest possible outfit. A left-handed man will need the ambidextrous safety. One who suffers from hammer bite may need a Commander hammer installed. Spare magazines? Any trouble will be settled with the first 8 shots or not at all. No trigger job, and no money allotted for fixing the defects that can show up in any brand new gun. (Factory warranties are worthless unless you are willing to wait several months for the gun.)

The big Colt — as with most other auto pistols — takes down quickly, and the owner who will familiarize himself with his autoloader can easily manage replacement of various component parts. Not so with the revolver.

## **The Charter 44 Bulldog**

The Charter is simpler. All it needs is an action job, say \$15 a gun (as with the Colt, there are other extras — grip filler, trigger shoes, custom grips). The 22 substitute is the Charter Pathfinder which, though the frame is smaller, has the same grip frame and sight picture as the 44. The “feel” of

the gun is close enough. Since the 22 and 44 are issued with different grips, you must buy one extra pair. Total cost is:

Bulldog	\$138
Pathfinder	114
Grips	15
Two action	jobs 30
100 rounds 44 ammo 22	
500 rounds 22 ammo 14	
Total	\$333

A few points warrant further explanation: I allowed only 100 rounds of 44 ammo. A revolver is less prone to intermittent failure than an automatic, hence needs less checking out.



**Charter Arms Bulldog** (below) and its 22 understudy, the Pathfinder, out of the box. The grips are interchangeable. Although frame sizes differ, and only the Pathfinder has adjustable sights, sight pictures are identical and the “feel” of the two guns is similar enough.

Gunsmithing on the Charters, though cheaper, can be tricky. Some gunsmiths, asked to smooth the action, cannot resist lightening the trigger pull so much the gun doesn't always fire. You can only tell him that it is a self defense gun, that you would rather it go off every time than have a light pull, and hope the smith listens. Someone with a knack for double action shooting might consider going without an action job. Unfortunately, the Charter out-of-the-box action isn't as good as we could hope for.

With the Colt I totalled the 45 gun and ammo first, then added the 22. The idea was that a new shooter could buy the 45 stuff first, do his preliminary training on that, and save the 22 kit for later.

However, the recoil of the Charter Bulldog is very severe, about the same as a steel-frame S&W Chiefs Special with high speed loads. Relatively few new shooters, or experienced shooters for that matter, will want to practice extensively with the Bulldog. Even preliminary training will probably require the 22, though I could be wrong. There may be some who can put 50 rounds through a Bulldog in one afternoon and not be bothered. Others may be so sensitive to recoil they must buy a 22 kit for preliminary training with the 45 Colt.

No matter, I've done enough on costs to give you the general idea of how to make cost comparisons. You can add up the costs yourself for any combination of circumstances that interests you.

Conclusions? As of mid-1976, a Bulldog, with 22 substitute costs about \$121 less than the equivalent setup with the Colt, and \$2 less than the Colt 45 setup alone. It seems silly to make a life and death decision over \$121, but that's a lot of money to some people. Furthermore, I have given only the minimum cost for both brands. You could get stuck with the cost of fixing up a lemon — and I won't guess which brand this is more likely to be. Then there is the matter of spare guns: \$153 for the Bulldog; \$278 for the Colt.

### **Mastering the Gun**

Now we come to a big point for the Colt and against the Charter: difficulty in learning to shoot. Shooting double action is harder than shooting an automatic. How much harder? At the beginning of World War

II, William Fairbairn and Eric Stykes, formerly of the Shanghai police, wrote training books on handguns, knives, and hand-to-hand combat. Their gun book, really ahead of its time, was recently reprinted (Shooting To Live) from Paladin Press, Box 1307, Boulder, CO 80302). The desirability of automatics over revolvers was stressed — more than 20 years before that idea was general knowledge in this country. It was stressed that traditional bullseye shooting has no relation to combat shooting.

Comparing training with revolvers and automatics, the authors said that the revolver requires thrice the time and double the ammunition costs to achieve the same proficiency. Of course, this was long before Jack Weaver taught us all to use a two-handed grip for close-range shooting. Michael Harries, a handgun instructor, pointed out a danger I was unaware of — almost anyone can be taught to shoot single action, he told me, but some people never do get the hang of DA shooting. Someone, then, who buys a revolver runs the risk of investing a lot of time and money in a gun he never will be good with.

This risk is not to be taken lightly, but I am without a hard and fast answer to these conflicting points.



**Charter Arms handguns** may be fitted with grip fillers (for the small grip). The expense is slight and — in my hand — it makes a difference. Shown is the Tyler T-Grip filler, from Melvin Tyler, 1326 W. Britton Rd., Oklahoma City, OK 73114. These are available in black, polished aluminum or gold.

The extra ammo expended in mastering a revolver doesn't cost much, since most practice will be with the 22. The 500 rounds I've already added in make a good training program, even for a revolver. How much value to put on the extra time is up to the individual shooter.

### **Firepower**

Another point in favor of the Colt is firepower. The Charter holds 5 rounds, the 45 Colt 8: two spare magazines hold 14 more. It takes a couple of seconds to change magazines in the Colt; considerably longer to reload a revolver. I can't manage it in less than 30 seconds, but it's not something I practice.

How important is firepower? It can be argued that our beginner can't hope to stand off the whole Symbionese Liberation Army single handed. At best he can hope to down one or two people, and he can do that with 5 shots if he can do it at all.

There have been plenty of reports of policemen emptying their revolvers in action. However, these cases usually involve stopping failures or panic sprays. Stopping failures are more likely with police 38s than with the Bulldog. As for panic sprays, if a man can't keep his head enough to aim well, what good will additional shots do him? In one recent gun fight four California Highway Patrolmen fired a total of 50 shots without one hit.

But we can find a few individual cases to support almost any argument. What are the chances that the difference in firepower will make the difference between life and death? I just don't know. Still, the Bulldog gives 5 shots more than the Colt 45 that isn't with you because it's too big.

There are some cases where people need a small, inconspicuous gun sometimes but want more firepower at other times. The usual answer is two different guns, but here's another — if one Bulldog holds 5 shots, two Bulldogs furnish 10.

Two Bulldogs can be kept next to each other in store or home, and two weigh you down no more than one 45. Two Bulldogs answer the question of holstering the gun for the F.B.I, draw (fastest standing up) or the cross draw, fastest if you get caught sitting down. Too, and important, the shooter saves the trouble and expense of mastering two different guns.

Sure, the idea of wearing two guns has a juvenile ring to it. We are used to thinking of two guns as comprising a belt gun and a hideout gun, but two guns smack of Matt Dillon or some other movies cowboy.

Another point for the Colt is durability. Some of them, I've heard, have shot 100,000 rounds or so. It's a gun to outlast most shooters. The Bulldog, very light for its cartridge, probably wouldn't last that long. Still, since most Charter practice will be with a 22, that isn't really an issue.

What happens if the gun is dropped or otherwise roughly treated? (Yes, I know you're not supposed to do that, but it does happen.) The Colt auto is very hard to damage. Revolvers are more vulnerable.

Reliability? I don't know. The Bulldog hasn't been around long enough.

As I review what I've written, I seem to have come down heavily on the side of the Charter. Perhaps, but I feel the Charter is under-rated today and needs to be better known. Now let me sum up what's been said.

The Colt has more stopping power; it's the easier one to shoot; it allows more practice with business ammo since it doesn't have the Charter's demoralizing recoil; it has more fire power and it's probably more durable. It is the best combat handgun available. All others, including the Bulldog, are meant for those occasions when circumstances prohibit using the big Colt.

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1980



## Model 1911 Colt: Six Decades Of Service

“It stands quite alone as a standard of excellence among military pistols” ■  
Dennis Riordan

**I**N THE PASSING years since the adoption of the Browning/Colt Model of 1911, the development of military pistols has been influenced by three major factors: advances in firearms design, gradual changes in military requirements, and the introduction of new materials and manufacturing methods. All of the Colt's contemporaries have long since disappeared from the martial arsenals of the world, but the 1911 still retains its position as the standard service pistol of the United States. The only military handgun in history to compare with this record was Britain's 455 Webley revolver, which passed through 6 Marks and broached the transition from black to smokeless powder in its long and stormy career. However, even the great Webley has been far outstripped by the Browning/Colt, both in length of service and in actual battle use.

The reasons for the Colt automatic's longevity are various and complex. Unquestionably the basic excellence of the gun and of its unique cartridge have always been paramount, but many other contributory factors may also be cited, whose total leverage has proved irresistible.

A historically related series of events began in 1892, when the Double Action 38 New Army Revolver replaced the 45 Single Action Army, which had been standard issue since 1875. The new revolver appeared to hold great potential, since its swingout cylinder offered simultaneous ejection and fast reloading, its double-action mechanism increased the rate of fire, and the greatly reduced level of recoil made the gun pleasant to shoot. Whatever the good qualities of the revolver, however, the 38 Long Colt cartridge proved woefully inadequate in battle. This became evident during the close-quarter encounters of the 1899 Philippine Insurrection, where quantities of 45 Single Action Colts were hastily reissued to supply the stopping power that the newer handgun patently lacked.

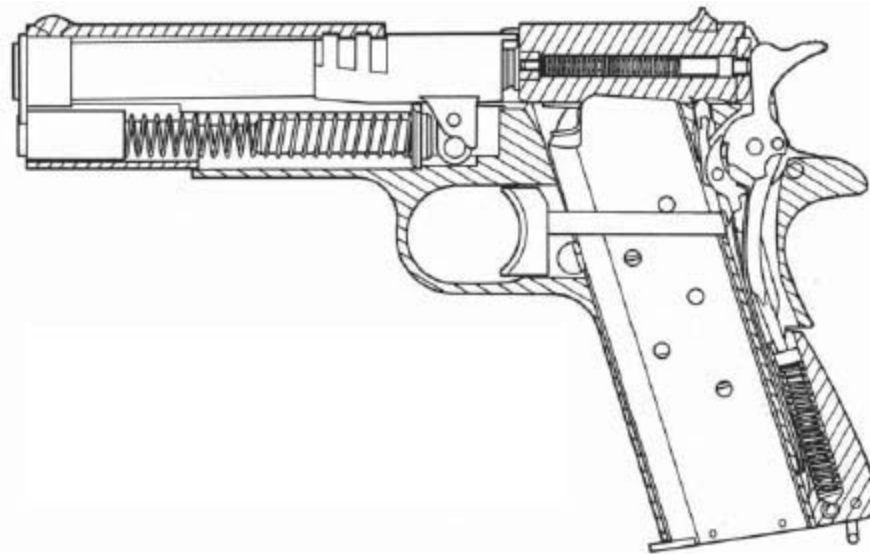


**U.S. Service Pistol, Model 1911-A1.** Original M1911 is distinguished by flat mainspring housing, short grip safety tang, slightly longer trigger, and lack of finger clearance cuts in receiver.

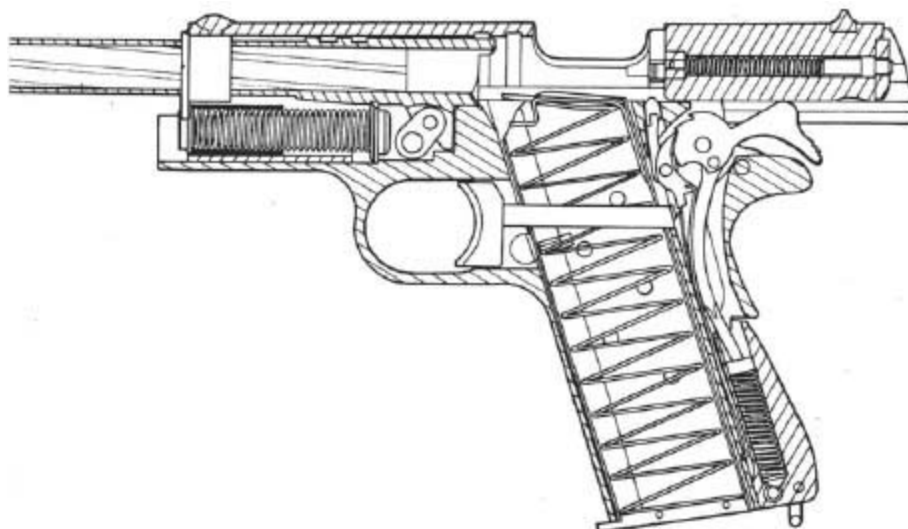
In 1904, the Army's Ordnance Department assigned Col. (later Brigadier-General) John T. Thompson of Ordnance and Col. La Garde of the Medical Corps, to conduct an investigation into the hitherto shadowy subject of stopping power. The Thompson-La Garde Committee determined the nature of wounds and shock effect by the empiric method. Exhaustive shooting

trials were conducted, initially with human cadavers, later with live steers at the Chicago stockyards. Several then-current revolvers and pistols were used for the tests, including the 7.65mm and 9mm Para-bellum, and Colt automatic pistols in 38, 45, and 476 caliber, using various types of ammunition.

Operation of firing mechanism. Upper left : ready position. Upper right: instant of discharge. Lower left : disconnection of sear. Lower right: return to battery — disconnecter will move to ready position upon release of trigger. Notice relationship between sear and disconnecter throughout.



**Loaded and locked**, hammer fully lowered. Inertia firing pin held clear of cartridge primer by its spring.



**Unloaded and unlocked**, Rear of barrel tilted down by barrel link, slide held open by slide stop.

### **Author's Note**

*When I once did some drawings on the derivative Model B Star, I began to see the strong points of the basic Model 1911 design. The features of the Star that I disliked, the extractor, firing pin, and disconnect, were departures from the original concept, which began to look very good indeed. This chain of thought was confirmed when I finally obtained a specimen 1911-A1. I then reviewed every objection to the gun that I could find in my files, and found precious little substance in any of them. On the contrary, I found a gun that stands quite alone as a standard of excellence among military pistols.*

### **Momentous Decisions**

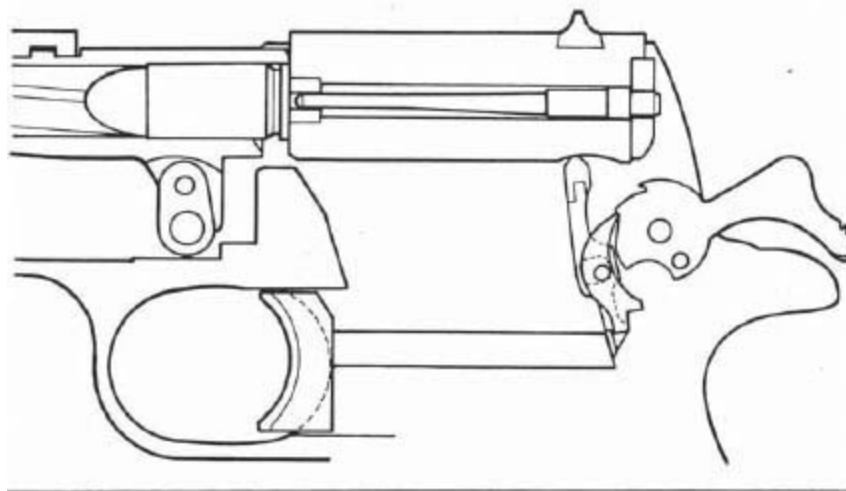
The Committee's findings were of great significance in several areas. Recommended as the most effective man-stopper was the 45 caliber, with a blunt nosed bullet of at least 230 grains and a minimum initial velocity of 800 feet per second. The 9mm Parabellum was found to be relatively ineffective as a man-stopping cartridge. It was noted that this small caliber, relatively high velocity bullet inflicted small, clean wounds that were easily healed. Frequently the body was completely penetrated with out instantaneous damage, and apparent damage was occasionally delayed for hours. The tests proved conclusively that the oft en quoted muzzle energy figure (kinetic energy of the bullet, derived solely from its mass and velocity and expressed in ft. lbs.) has no direct bearing on the relative stopping power, since it does not consider the cross-sectional area of the bullet (frontal area) nor the factor of bullet shape. (Stopping power is also influenced by expanding bullets, but these have been outlawed for military use since the Second Hague Conference of 1907).

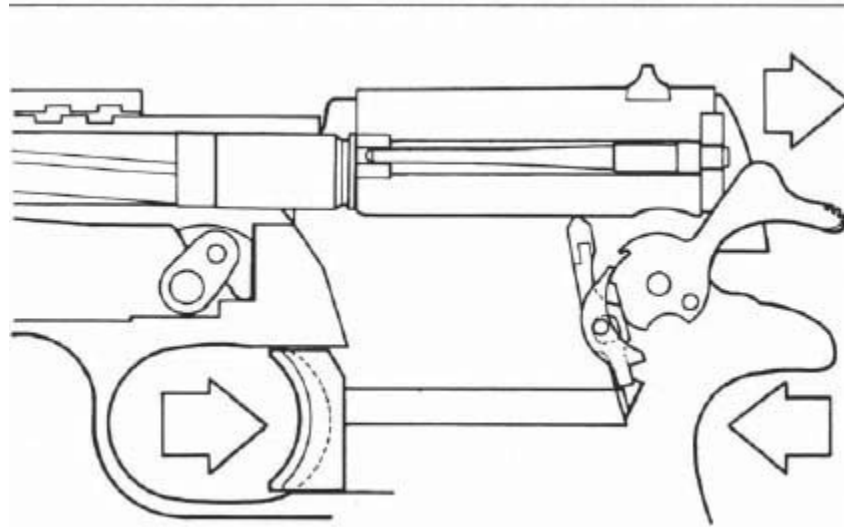
On receipt of the Thompson-La Garde report the Ordnance Department determined to adopt a new service pistol in accord with the Committee's recommendations. Manufacturers were invited to submit 45 caliber pistols for the lengthy series of comparison tests and field trials that were to proceed intermittently from 1906 to 1911.

Both Colt and Smith & Wesson presented 45 caliber revolvers for evaluation, but during these years the automatic pistol was coming into its

own, and the military advantages of the new firearm type were so compelling that the revolvers had little chance of acceptance.

Colt's 45 automatic was designed by John Browning and was, from the very beginnings of its development, intended as a military pistol. Each element of its construction was chosen for that specific purpose, and all compromises were resolved in favor of military use. Nonetheless, as the pistol went through the Army's gruelling tests in competition with rival designs, weaknesses and inadequacies appeared with in the prototypes, and changes were made as the trials went on. Since the tests were conducted in peacetime, the Army proceeded in leisurely fashion, insisting upon extremely high standards of reliability and strength. No inherent weakness remained in the final version of the big Colt, which passed the last 6000-round endurance test with out a stoppage or broken part. The selection board adjudged the Colt as a clearly superior design and recommended its adoption; shortly thereafter, in early 1911, it became the standard service pistol. The true extent of the Colt's superiority has only become evident with the passage of time.





**To battery** – disconnector will move to ready position upon release of trigger. Notice relationship between sear and disconnector throughout.

The 45 Government Automatic Cartridge was adopted simultaneously with the Colt pistol. This round, carrying a full-jacketed 233-gr. bullet, was developed at Frankford Arsenal from an original Browning design. Although considerably smaller in case capacity than the old 45 Colt revolver cartridge, the 45 Automatic was nearly as powerful, since it was designed for maximum efficiency with smokeless powder.

### **First Major Test**

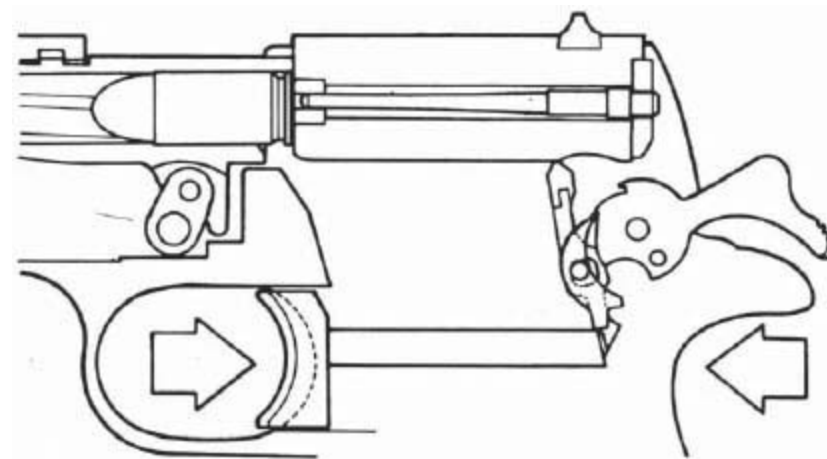
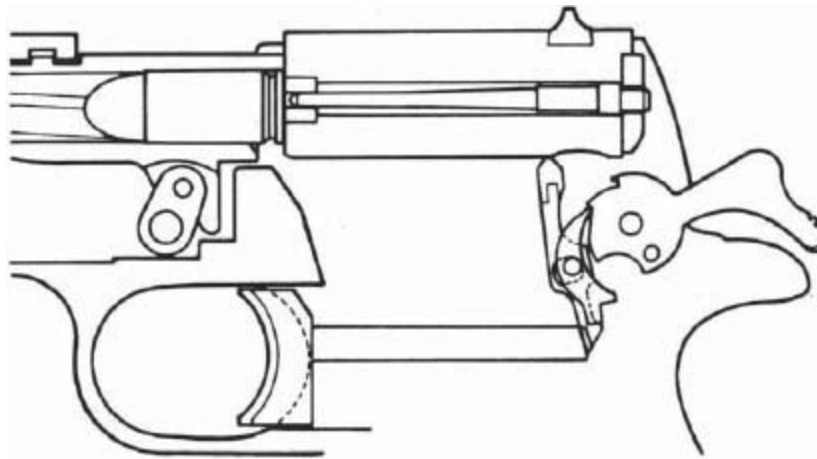
The new pistol/cartridge combination was used in a series of skirmishes along the Mexican border, and carried into Mexico during the punitive expedition against Pancho Villa's raiders, but the first large scale battle test of the arm followed America's entry into World War One, when U.S. troops arrived in the trenches of Belgium and France. Here, under actual field conditions, the 1911 established its reputation as a rugged, reliable handgun, and also as a dependable man-stopper, despite the rarity of documented enemy casualties that could be attributed to it. Most officers and NCOs were armed with the Colt, however, and no rumors of failure, either of arm or ammunition, ever surfaced.

Criticism of the 1911 did arise during the WW I period, and as a result, certain modifications were later undertaken at Springfield Armory to improve the pistol. These consisted of a widened front sight to better the sight picture; an enlarged spur on the grip safety to prevent pinching of the thumb web during recoil; a shorter trigger and finger cutouts in adjacent

receiver areas, to accommodate soldiers with small hands and generally improve trigger control; and a curved mainspring housing, to benefit the pistol's pointing characteristics and afford a superior grip. In 1926 these changes were approved, and the modified pistol was accepted as the M1911-A1. All service pistols manufactured since that date have conformed to the A1 specifications, and the older guns were gradually modified as they were returned to military arsenals. It should be noted that the improvements effected in the A1 version were entirely external in nature; no mechanical changes have ever been made.

The 30-M1 Carbine, adopted upon the very eve of World War Two, was conceived as a replacement for the pistol in the hands of combat troops. In the event, this did not occur. Both weapons were manufactured in huge quantities and equally distributed to U.S. forces in all war zones. The relative value of each was not difficult to assess, since WW II was a long war, and the best documented in history. Combat reports and wound statistics proved the carbine an effective aggressive arm, while the pistol was revealed as a primarily psychological weapon. Times were changing; as shoulder arms became self-loading or fully automatic, the melee was becoming rare. Again, as in WW I, enemy casualties inflicted by the pistol were far flung and few, but its contribution to morale was strong.

The introduction of the German assault rifle during the course of WW II had broad repercussions in the postwar years. The Germans retained full power ammunition for the machinegun and the sniper rifle, but the basic weapon for the infantryman became a short, light, selective-fire rifle, firing a shortened 8mm cartridge of intermediate power and range. This single compromise weapon was intended to replace the full power rifle, the submachinegun, and, it was hoped, the pistol as well.



**Unlocked slide:** Should the slide fail to lock completely (upper), disconnecter prevents discharge (lower).

Russia embraced this concept with out reservation, and the power and prestige of the U.S.S.R. carried the idea throughout the Communist World. The pistol could not be eliminated in any of these nations, but its role was downgraded and, in Russia itself, smaller, less powerful handguns were adopted.

With the usual exception of France, the powerful western nations reluctantly followed the lead of the United States in the acceptance of the 7.62 NATO cartridge. This round is a shortened, updated version of the 30-06 that differs only slightly in ballistics; a full power cartridge for rifle and machine gun. Our new infantry rifle became the M-14, and the carbine and pistol remained in service.

### Successor Rejected



During the 1950s, the U.S. Army explored the possibility of a new handgun. Germany's P-38 seemed to hold the answers to many of the complaints that had been leveled at the 1911 over the years; that it was too bulky and heavy, too powerful, too slow to get into action. In addition, the 9mm Parabellum cartridge had already become the universal choice of the other NATO countries for pistol and submachinegun use. Therefore, a list of requisites was established for a handgun of similar type, including a limitation in bore size of 30 to 35 caliber. Upon Army invitation, several strictly commercial designs were submitted for evaluation, as well as the T3 pistol, developed by the High Standard Company under direct Army contract. A number of these submissions were double action designs, and most were chambered for the 9mm Parabellum. The situation seemed strikingly reminiscent of that which had been obtained in 1892; single versus double action, 45 vs 38 (i.e., 9mm) caliber. The guns and the ammunitions were actually a far cry from those which had figured in that elder challenge, but the findings of the Thompson/La Garde Committee had never been discredited, although they appeared about to be ignored. However, trials were still in process when the decision was announced to retain the 1911, and the pistol testing was abruptly terminated. The reason for this decision has never been publicly revealed, and the preliminary findings of the tests themselves are still classified.

Certainly, a pertinent circumstance was the fact that the nation's armories retained an enormous stock of 1911 pistols produced during the WW II period, even beyond those at present in service in Korea and throughout the world. To replace these existing and battle-proven pistols with a handgun of new design would have required a major expenditure of funds, and this in face of a marked de-emphasis on the role of the pistol as a military arm.

Existing WW II stocks of M3-A1 submachineguns may also have clouded the issue, but only marginally. While these were also chambered for the 45 pistol cartridge, their design permitted conversion to 9mm Parabellum, and their number was not particularly large. Use of submachineguns by U.S. forces had been extensive only among para-troop units, and their future utilization was uncertain.

Naturally, the design of the 1911 and its 45 caliber cartridge were prime factors in the question of replacement. Gun and cartridge were inseparable, since a caliber change would almost certainly have resulted in a new pistol. The 45 U.S. automatic pistol round had been the center of controversy ever

since its introduction. The heavy weight of its bullet creates an inordinate amount of recoil, and this characteristic has always caused unsettlement and even fear in military recruits undergoing their ordinarily rather superficial training with the 1911 pistol. The girth of the cartridge also reduces the magazine capacity below that of comparable 9mm pistols, and practically eliminates the possibility of staggered loading that the smaller caliber allows. The superior penetration of the 9mm Parabellum has oft en been cited as cause for change, since the 45 comes into difficulties against obstructions which the Parabellum pierces with ease. Penetration is of advantage to the submachine gun, an arm of offense, but with the exception of military police duty, the pistol had not been employed as an aggressive weapon since WW I. The role of the pistol had declined to one of a purely defensive arm, whose function consisted of stopping the advance of a determined opponent at close quarters. Stopping power and reasonable accuracy are the primary requirements of a weapon of defense, and these qualities the 45 possessed in full measure. A good man-stopper inflicts instant and massive bodily damage sufficient to break off an attack (not necessarily to kill), and the 45 will almost always achieve this result with a solid hit anywhere in the torso. No military cartridge came near the 45 in this respect, certainly not the Parabellum.



**Unloaded and locked**, hammer at full cock. Magazine not shown.

### **The Nonpareil —**

The 1911 pistol itself was and is much too good to discard unless a prospective replacement could offer irresistible improvements. No pistol has ever surpassed the Colt for utter reliability. It has operated under the most extreme conditions of nature and endured the roughest treatment without failure, and has digested ammunitions of greatly varying chamber pressure without trouble. Any modern military pistol must be capable of field stripping without tools, but the 1911 goes much farther than this. It can be completely disassembled without the use of any tool, excepting only the grips, whose removal is never required. These are attached by four screws and bushings, the only screwed parts used in the gun. Breakage or loss of either or both grips has no effect on the gun's operation, and does not permit the escape of any other part, since all pins are mechanically

retained with in the pistol independently of the grips. This is an important feature; many of today's military pistols would be put out of action by grip failure.

The pistol's controls are intelligently located for convenience of operation. The hammer is easily thumb cocked, and its contour affords an excellent gripping surface. The safety lies directly above the thumb and operates with great ease. The pushbutton magazine release allows disengagement and ejection of the magazine using only the shooting hand, making this pistol one of the fastest of all automatics to reload. The slide stop works efficiently to signal an empty gun and hasten reloading, and it also permits locking the slide open manually at any time. The Colt's balance is good, and the gun handles well. The weight of the piece and its long sighting radius contribute to steady holding and accurate fire. The presence of the grip safety requires the use of both hands to lower the hammer from full cock. Since manual decocking is the single most dangerous operation necessary to the employment of an automatic pistol, the added control afforded by the mandatory second hand raises the level of safety proportionately.

As a mechanism, the 1911 abounds in excellent features. Its tilting barrel lock remains one of the strongest and simplest of locking systems, and its dual barrel lugs both contact recesses in the top of the slide, dispersing recoil forces over a large surface area. The tilting barrel also brings its breech into close proximity with the incoming round from the magazine, and this, plus the barrel tang, affords almost flawless feeding. It is true that a cam system such as Browning used in his later High Power pistol is slightly stronger and more efficient, but this superiority is in degree only; it certainly does not obsolete the swinging link of the 1911.

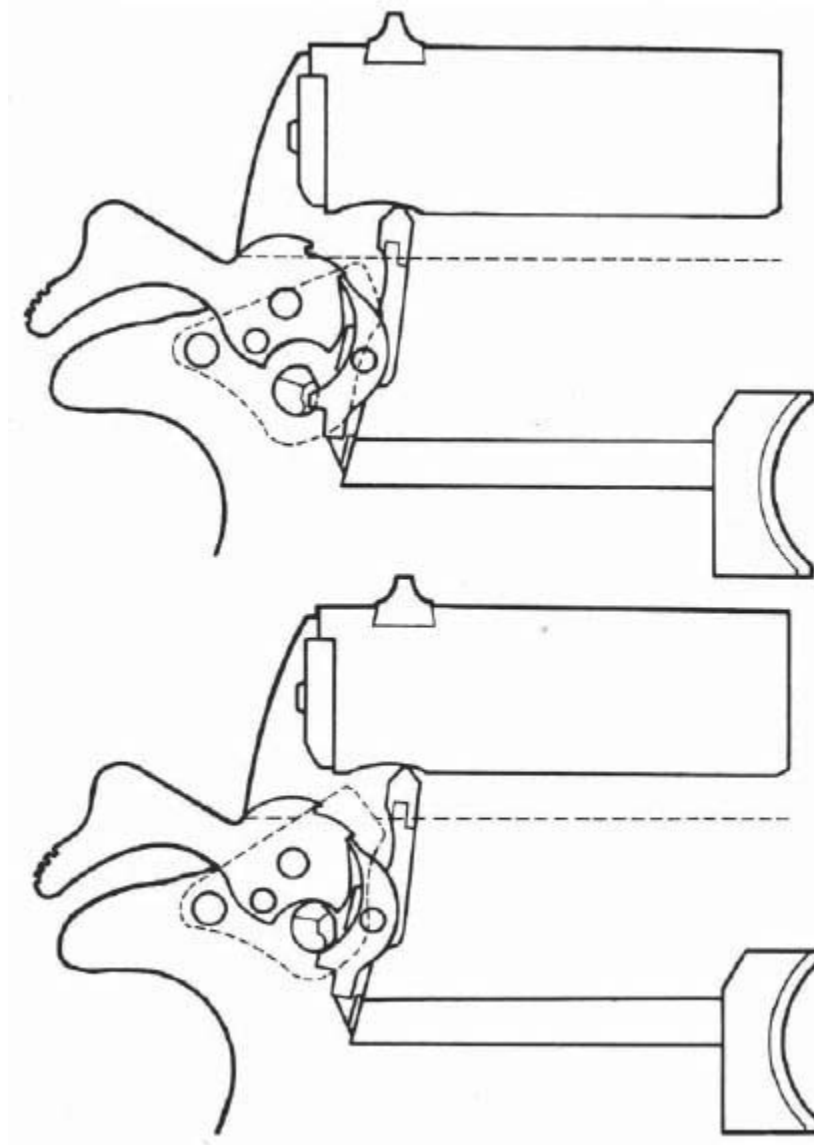
### **Abounds in Excellence**

There is no finer extractor in any pistol. It is located entirely with in the slide, fully protected against injury or the ingress of foreign matter. Since it does not pivot on a pin and acts as its own spring, it cannot become frozen by rust or hardened lubricant. The design of the feed mechanism is such that the rims of incoming rounds are forced upward behind the extractor, rather than requiring the extractor to snap over them, prolonging the life of the part. However, the extractor is sufficiently flexible to jump the rim of a hand-loaded round as the slide is slam closed upon it. Damage or loss of the

magazine does not completely disable the big Colt, since its slide stop, large ejection port, and lack of a magazine disconnect allow handloading and firing in the total absence of the magazine.

The firing pin is an inertia type, affording safe carry with the hammer fully forward over a chambered round. Its long, tapered tip is highly resistant to breakage, while its symmetrical design allows the pin to turn freely, distributing wear. Dry firing is not injurious to the firing pin, because its forward movement in dry fire is arrested by the full compression of its spring, not by a retaining pin.

The firing-pin stop is also a fine feature of the 1911, locking the extractor as well as the firing pin, and affording easy disassembly of both parts.



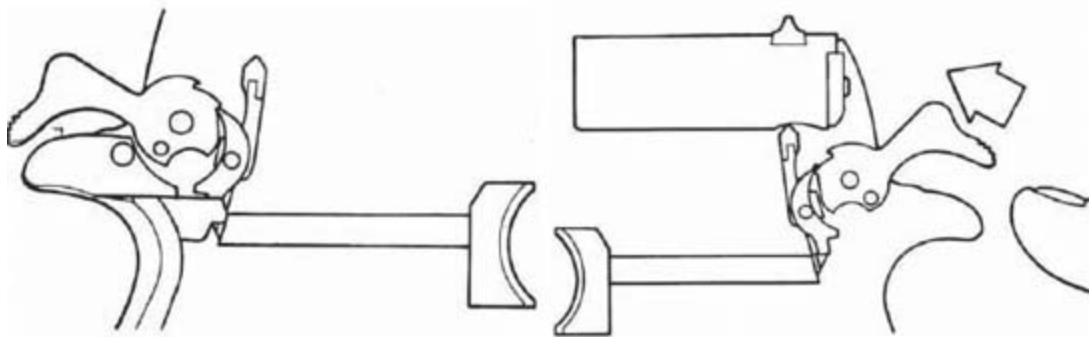
**Action of manual safety.** Upper: fire position. Lower: safe position — safety nose raised into slide recess, locking it closed. Separate surfaces of internal boss lock hammer and sear, preventing movement of either.

Some criticism has been directed at the Colt's sliding, stirrup type trigger, because of its vertical play. This play is detrimental only in match shooting; the fact that the trigger does not pivot on a pin is actually of advantage to a military pistol. Neither rust nor any accumulation of debris is likely to affect the trigger's movement, and its operation cannot sweep mud or dirt into the receiver. The trigger and its bar are incorporated into one simple part, the trigger bar being entirely enclosed within the receiver. No other trigger/trigger bar system is simpler or more foolproof.

The safety mechanisms of the 1911 are also very good. Separate surfaces of the manual safety lock the hammer, the sear, and the slide.

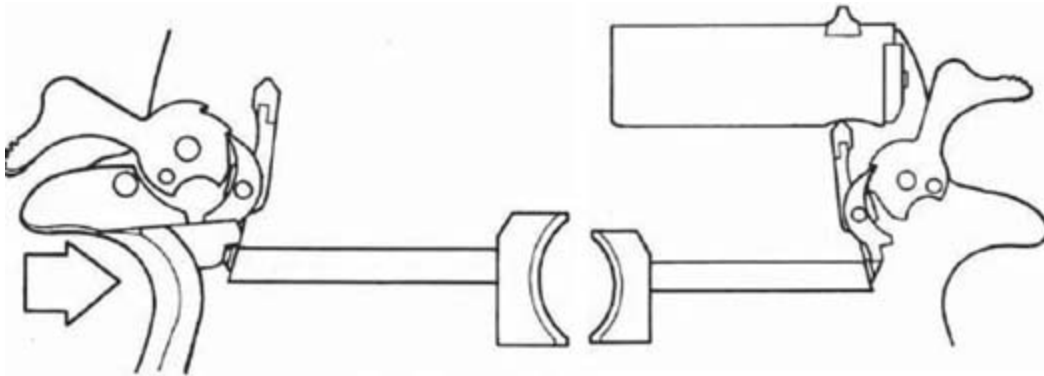
The disconnecter is completely enclosed by the receiver and operates within a rounded notch on the under-side of the slide to prevent automatic fire and discharge with an unlocked slide. Should the gun be assembled without the disconnecter, it cannot be fired.

The hammer's safety notch interrupts hammer fall in any circumstance that does not originate from trigger release. The sear enters this notch if the hammer slips in thumb cocking, or the slide moves forward after partial withdrawal, either manually or through an accidental fall upon the muzzle. If the sear loses contact with the hammer's full-cock notch through a jar, the safety notch allows the hammer's recapture before it can complete its stroke. The hammer safety notch is not a half-cock position and should never be so employed, because a blow upon the hammer in this attitude could fracture the sear or hammer notch and discharge the gun.



**Automatic safety.** Upper: safe position — safety nose contacts rear of trigger bar, blocking its movement. Lower: fire position — safety

disengaged by pressure on grip.



**Hammer safety notch.** Should the hammer slip during thumb cocking (upper), it is intercepted by the sear (lower) which moves into the hammer's safety notch before the firing pin can be struck.

The grip safety blocks movement of the trigger unless the pistol is held naturally in the hand. Its location at the rear of the grip allows the safety to function without conscious thought, and reduces the danger of accidental self-inflicted wounds.

The Colt's magazine floorplate is permanently attached, in contrast to several more recent designs, whose detachable magazine floorplates allow easy takedown and cleaning of the assembly. Actually, the Colt pattern is preferable from a military standpoint, since this magazine cannot become accidentally disassembled and parts lost, yet its follower and spring may be removed from the top.

The sights are simple, effective, and strong. That they are nonadjustable is advantageous, since their height is calculated for service ammunition at predetermined range, and they are factory set for windage zero. These sights have no small parts to loosen or break, and they cannot be tinkered out of adjustment. Their very low profile and rounded contours easily clear holster surfaces. Both sights may be replaced in case of damage, or target sights substituted for match shooting.

### **Few Faults**

The 1911 has no really bad features, but it is less than ideal in several areas. The gun is large and heavy in weight, both factors owing to the cartridge it fires. Any reduction in weight would increase the difficulties of recruits in mastering the arm.

The grip safety was incorporated into Browning's prototype 45 at Army request, while the pistol was undergoing its pre-adoption trials. At this time, pistols were carried fully armed in the advance by infantry officers and noncoms, and employed in like manner by mounted cavalry troops. Compared to a shoulder arm, the pistol is difficult to control in a stumble or fall; its small size allows it to turn in the hand and endanger its bearer. An automatic safety reduces such risks, since it tends to engage as the wrist is twisted into an unnatural position. However, the new defensive role of the service pistol largely invalidates this consideration, and the grip safety is at present of small practical value in a military pistol having both an external hammer and a positive manual safety. The Colt's automatic safety causes few problems in its operation, but the safety's inclusion in the design requires a goodly number of additional parts, expensive machining operations, and an additional receiver opening, affording entry to water and dust.

A left-handed shooter encounters handling difficulties with the manual safety, but this is unfortunately true of almost all military automatics.

The external location of the safety plunger-tube exposes the safety and slide-stop plungers to water and dirt. The malfunction of either plunger would not put the gun out of action and they are easily serviced, but the arrangement is not ideal. Also, the tube is riveted to the receiver, and any looseness that should develop in these rivets cannot be serviced in the field.

The slide stop does not extend sufficiently rearward to afford good leverage, nor an easy reach for the thumb.

Field stripping of the 1911 is not difficult, but it is rather slow, fairly complicated, and results in more loose parts than could be desired. It should be noted, however, that there is no hazard of kinking the recoil spring during this operation, and that the gun cannot be improperly assembled in a dangerous condition.

The 1911 is not as safe as others whose design affords a mechanical means of decocking the hammer, and is theoretically inferior to a double action pistol, which may be cocked and fired by the application of a long pull on the trigger.

In practice, double-action trigger mechanisms tend to be delicate and complicated. It is doubtful if any such system offers the complete interchangeability of parts enjoyed by the 1911 Colt, and none can match its reliability of function.



For reasons of safety, army regulations require that the Colt pistol be carried with its chamber empty in non-combat areas. Under such restrictions, there is no advantage to a double action pistol, since either type requires manual cycling of the slide before discharge is possible. In combat zones, the Colt is carried loaded, either with safety off and hammer fully down, or with hammer cocked and safety engaged. The first condition requires thumb cocking of the hammer before the gun can be fired, and is slower than the long trigger pull of a double-action pistol. In the second condition only thumb release of the safety is necessary; this operation may be performed and the gun discharged in about the time required to fire a double action design.

An often stated advantage of the double action automatic is its ability to quickly deliver a second blow to a reluctant primer. This may be a valid argument, but it seems equally likely that a soldier would prefer to manually reload the piece immediately upon a failure to fire.

On the whole, the supposed superiority of the double-action pistol is largely illusory. The idea has psychological value but, as a practical matter, an external hammer single-action automatic such as the 1911, having a positive safety properly located and contoured, is no less efficient.

### **Changes Since Last Trials**

In the years that have passed since the abortive pistol trials of the 1950s, significant changes have been made in U.S. infantry weapons. The venerable B.A.R. and the Browning 30 caliber machineguns have been withdrawn from service and quietly replaced by the excellent 7.62mm M60 General Purpose Machinegun, derived from the German FG-42 and MG-42 of WW II design. The jungle fighting in Vietnam called for a high rate of fire and a short, light weapon of intermediate power, a class of arm that fell midway between the M-14 and the M-2 Carbine. Caught in a pinch, the tail wagged the dog, and the services were forced to employ and eventually accept the previously rejected AR-15, with its untried gas system and unconventional design. Deficiencies arose in the field and manufacturing changes were made to counter them; the corrected version was adopted as the M16-A1, a good and serviceable weapon.

With drawal of American troops from Vietnam found the U.S. in the position of possessing large quantities of modern service rifles of both full and intermediate power, a luxury enjoyed by no other major nation on earth.

The future employment of each has yet to be determined. What proved to be the ideal weapon for Vietnam may not suffice in more open country and under more conventional methods of warfare. In any case, the 30 Carbine and the 45 submachinegun would seem on the verge of obsolescence, and there is apparently no longer any possibility of adopting a 9mm submachinegun.

The nature of the war in Vietnam worked greatly to increase the status of the service pistol. Guerrilla activity in the cities meant that there were no safe areas in the country, and rear echelon personnel were often dependent on the pistol as a means of personal protection. Carrying it openly reduced chances of attack, and pistols were in great demand, whether authorized or not. Such lessons are not quickly forgotten; the position of the 1911 pistol seems more secure today than it did 20 years ago. The career of Browning's 45 is far from ended. It is as good as it ever was, and that is very good indeed.

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1980



## The 45

This soldier had a 45 autoloader better than Colts Model 1911-or so it worked for him. ■ Robert Skiles

ONE FATEFUL DAY in 1926 in Denver, Colorado, a woman raised a 45-caliber automatic pistol, aimed it at her husband, pulled the trigger and blew him to Kingdom Come. I have that pistol today, and it is one of my most valued possessions because it is a very special firearm.

At the time, my father was on the Denver Police Department and responded to the homicide call. Later, he told me she told him she had thrown the gun into the overhead flush box of a chain-pull toilet. He fished it out of the water, cleaned it and turned it in to the Police Custodian who, I presume, retained it for evidence in a murder trial.

The woman's fate is buried, but Dad liked the pistol and was able to obtain it from the Custodian when no one claimed it after the standard time. This was commonly done in those days and some policemen and detectives accumulated sizeable gun collections.

They were not necessarily looking for valuable guns, but were interested in a variety of light and heavy caliber pistols, rifles and shotguns, sometimes for curios and sometimes for utility. Dad told me that he liked the 45 automatic because it was light and thin. He could carry a big wallop in a relatively small holster in his hip pocket.

Denver policemen, even off duty, were required to be armed at all times and prepared for immediate call. To my knowledge, Dad never used the pistol in the line of duty, but he did enjoy firing it. When I was a boy, he and I would go east of Denver into the open plains where I could shoot my 22 rifle and Dad would unlimber “the 45” at tin cans.



After the outbreak of World War II, I was commissioned in the artillery and Dad gave me “the 45.” The issue Model 1911 45-cal. automatic pistol was more awkward to handle, so I carried mine exclusively. It was lighter weight because it is very simply constructed and of thinner metal. It has no such feature as the grip safety. In fact, the only safety on it is the half cock. A disadvantage was that the clip was not interchangeable with the 1911, so I had to keep my own supply.

Also, my pistol could not use the steel-cased ammunition that was issued during the war. If a round was in the chamber it would fire, extract and eject satisfactorily, but would not properly pick up the next round from the clip and seat it in the chamber. Nevertheless, there was always some brass-cased ammunition to be found, and I didn’t suffer.

I had a shoulder holster made for the pistol in the U.S. and while in Europe I wore it all the time.

Once in Italy after firing the pistol I noticed the front sight had fallen off. It could not be found, but I was not concerned because a short-range handgun was rarely aimed, and, further I thought the sight might interfere with a rapid draw from the shoulder holster and never replaced the sight.

A few months later I was in Berlin with the Army of Occupation. The U.S. forces had been having trouble with Russians taking jeeps from our troops. Two or three Russian soldiers would stop a jeep on the street, take it away from the American at rifle point, and drive away. Very simple. Our enlisted troops were not armed unless on guard duty, but all Russians carried their weapons everywhere. Some Americans had been badly beaten or shot when resisting.

The U.S. command decided that the losses had to stop. Certainly the Russian command was not going to take action. Orders came down that anyone who lost a jeep under any circumstances would have the value deducted from his pay. If my memory serves me correctly, that was about \$700.



**The Colt 1905** was built for a 200-gr. bullet at 900 f.p.s., so author's experience with 230-gr. GI load is understandable. NRA photo.

“...I WATCHED THEM CAREFULLY AND SAW THEM BEGIN TO UN-SLING THEIR RIFLES...”

One cold day in January or February of 1946 I was driving toward Templehof Airport when I was stopped by two Russian soldiers standing in the middle of a quiet, isolated street.

They were carrying their rifles innocuously slung across their backs and, to all outward appearances, I was completely unarmed. They came to my side of the vehicle and said something, I guess in Russian. I told them in English that I could not understand. Of course, that went over their heads. By then I was highly suspicious and had slowly begun to unbutton my Eisenhower jacket.

One of the Russians then began to tell me in very halting German that they wanted the “yeep.” In an equally halting German, I told them that they could not have it. They then moved to the front of the jeep for a conference.

I watched them carefully and saw them begin to unsling their rifles as they separated toward either side of the jeep.

Immediately I jumped out and jerked the 45 out of my shoulder holster. When I leveled it at them the matter was settled! They turned around and walked away.

After the war the pistol was retired to closets or trunks for quite a few years. At regular intervals it was cleaned and oiled, but it was not until one of my sons became interested in guns that we began to fire it occasionally.

One day after we had returned from the range I noticed a small crack in the slide near the retaining pin. I thought that it was probably due to metal fatigue and was afraid to shoot it anymore. It seemed that the best solution would be a new slide.

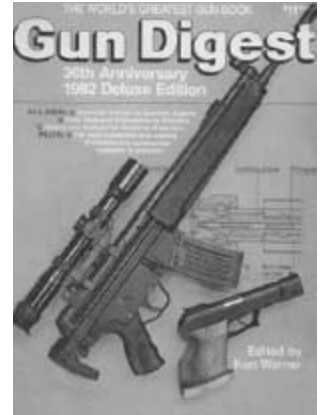
After searching unsuccessfully through many gun catalogs I wrote to Colt in Hartford, Connecticut and received the following reply: "The patent dates indicate your pistol to be the Model 1905.45 automatic pistol. This is the direct predecessor of the Model 1911. The development of the 45 ACP cartridge and the subsequent appearance of the Model 1911 pistol cut short the Model 1905 production at just over 6000 made over a brief span of six years. We regret that its short production and long obsolescence exclude the possibility of parts being available from Colt. According to Colt's production records (your) serial number 1205 was manufactured in 1906."

I next attempted to have the slide repaired and a sight mounted on it. I found that to be impossible, at least in my part of California, because gunsmiths have been the victims of heavy lawsuits if their repairs failed. The slide cannot be replaced or repaired.

So, after 72 years of life, "the 45" has been put on the shelf. Nevertheless, I still enjoy cleaning it, handling it and remembering.

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1982



## Shooting The 1911's Spanish Cousins

A little pitting doesn't really hurt. ■ WM. Hovey Smith



**The author testing** loads with the 38 Super Llama Extra. One hundred percent reliability was easily obtained with the Llama, but the Star balked with soft point and some jacketed hollow point bullets.



I TOOK CAREFUL aim with the Llama, squeezed off five shots, and was relieved to see the bullets grouping satisfyingly in the black. Considering the first time I shot the pistol only half struck the 25 yard target and many of those hit sideways, I thought this relatively tight group something of an accomplishment. It was not so much the fault of the pistol that it shot the hot plus-P 38 Super loads so badly nor was this poor performance due to any lack of accuracy of the Remington factory ammunition. The problem was the pistol's barrel was so pitted it had more than passing resemblance to a rusted sewer pipe with barely discernible rifling.

After writing the Llama factory in Spain for a new barrel, I was informed they had no replacement parts for the 50-year-old pistol. This disappointing news prompted me to work up some handloads that would enable me to use the pistol which was in relatively good condition except for the bad barrel.

Several years before I reloaded for a 45-60 '76 Winchester with a pitted bore and found reduced velocity loads with jacketed bullets gave best accuracy. I decided to use the same approach to see if I could concoct some reasonably good loads for the Llama and an old Star military.

Both the Llama and Star might be called the 1911's cousins because they have more than passing resemblance to the Government Auto. Certainly, the Llama Extra and Colt 45 Auto are very similar. The Llama incorporates the shorter trigger, milled frame, and arched housing of the Model 1911 A-1, but has a longer barrel, frame, and slide. Because of the similarity of size, shape, and function of Colt and Llama parts, they might be thought to be interchangeable. Most are not. The Llama was designed in 1931 and introduced in 38 Super Auto-9mm Largo. Later it was offered in 45 ACP, 9mm Luger, and in scaled down versions for 380 ACP, 32 ACP, and 22 Long Rifle.



**The Llama** is chambered for the 38 Super-9mm Largo and is marked on the slide “CAL 9 m/m 38” to distinguish it from similar pistols chambered for the shorter 9mm Luger. It has a slightly longer barrel, slide, and frame than the M1911.



**The Star** is designed for the 9mm Largo and is slimmer and shorter than either the Colt or Llama. It is also simpler, without, for instance, a grip safety.



**This is the original**, but good 45's aren't cheap anymore, which is why Smith took up with its Spanish cousins. The M1911 is the standard, but not the only pistol worth shooting.

Star pistols differ from the Llama and Colt in that several simplifications have been made. The most obvious is that the various Stars have no grip safety and the trigger is pinned at the top and pivots rather than slides.

The present Stars even more closely resemble the Colt Government Auto than does the old Star military featured in this article. Besides offering smaller versions in 380 and 32 ACP, Star chose to produce two frame sizes for the 38 Super. This caliber is available in the same size frame as the 45 ACP, which was the method chosen by Colt, and also in a slightly smaller version chambered for the 9mm Luger and 38 Super. The Star military was designed for the 9mm Largo cartridge which resulted in its being slimmer and lighter than the 45 Colt Auto. The Star proved to be a good military handgun and was used by the Spanish Civil Guard. When this pistol was replaced by the present Star Super large numbers were sold as surplus.

Thousands of Star and lesser numbers of Llama pistols were sold by mail order (then quite legal) during the 1950s. These guns were priced at between twenty and forty dollars. Along with these guns large quantities of 9mm Luger, 9mm Bergmann-Bayard (9mm Largo), and 9mm Steyr ammunition were imported. Most of this ammunition was corrosively primed, and resulted in many of these pistols developing badly pitted barrels.

In addition to these military surplus arms, new Llama and Star pistols were sold by Stoeger and other importers. The smaller versions in 380, 32, and 22 Long Rifle proved quite popular. The fact that these pistols closely resembled the Government Auto, and that most disassembled in exactly the same manner added no small amount to their sales appeal. The larger 9mm Luger, 38 Super, and 45 ACP versions did not sell as well. At the time, GI 45s were selling in good to excellent condition for about forty dollars, and many potential customers chose to buy one of these rather than the Spanish imports.

This sales resistance was because decades ago many shoddy copies of Colt and Smith & Wesson guns were made in Spanish workshops. Some were downright dangerous, and cast doubts on the safety of any Spanish-made handgun. However, pistols made by Bonifacio Echeverria (Star) and Gabilondo Y. Cia (Llama) have been of at least fair quality and many good to excellent models have been produced since 1930. Some feature hand-fitted actions and target sights.



**From left** — 9mm Luger, 38 Super, and 45 ACP. The 38 Super when loaded to full velocity has more muzzle energy than the other two cartridges. The reduced velocity loads developed by the author to use in pistols with worn barrels are accurate and reliable, but do not compare with factory 38 Super loads.

Llama and Star handguns are becoming increasingly desirable as the price of new and used Colts continues to climb. The possibility of buying a powerful well-made handgun for less than half the price of a comparable Colt is appealing to many potential buyers. The only reservation many

people have is that these pistols are often chambered for the 9mm Largo cartridge.

The 9mm Largo is the Spanish name for the 9mm Bergmann-Bayard cartridge which was introduced into Spain with the Bergmann pistol. It is quite similar and will interchange with the 38 Super. At one time it was thought almost any 9mm, including the 9mm Luger and 380 ACP, would work in guns chambered for the 9mm Largo. This issue was definitively put to rest by the late George C. Nonte Jr. in his article in the 1971 GUN DIGEST. In brief, he found these shorter cartridges would fire and sometimes function the mechanism if they were caught and held against the firing pin by the extractor. If they were pushed into the chamber ahead of the extractor and fired, case heads often separated. He concluded that using these shorter cartridges, particularly the powerful 9mm Luger, in 9mm Largo chambered guns was foolhardy and dangerous.

For the American shooter, the most reasonable substitute for the 9mm Largo is the 38 Super Auto. This cartridge is among the most powerful of pistol cartridges. In comparison with the shorter 9mm Luger it uses a bullet that is four grains heavier at a higher velocity (130-grain bullet at 1280 feet per second vs. a 124-grain bullet at 1110 feet per second for the Luger). This difference gives the 38 Super a muzzle energy of 475 foot pounds which is 136 foot pounds more than the 9mm Luger, and a 140 foot pound advantage over the 45 Auto.

The 38 Super uses the same case and bullet as the older 38 ACP, but is loaded to higher pressure. The warning that the Super 38 is not to be used in the 1900, 1902, and 1903 model Colt automatics is valid as this cartridge is intended for a slight modification of the much stronger 1911 Colt 45 Auto.

Despite the impressive ballistics of the 38 Super it is not outstandingly popular. This lack of interest is no fault of the cartridge's ballistics, but lies squarely with the fact that, except for a period prior to World War II, only full jacketed bullets were available in this caliber. While such bullets give good penetration they do not have the killing power of soft or hollow pointed projectiles. This reduced the popularity of the 38 Super for sporting use.

The answer for increasing the effectiveness of the 38 Super is not by increasing its velocity, but by loading more effective bullets. This need has now been met by Remington who markets a 125-grain jacketed hollow point loading, and by independent bullet makers like Speer, Sierra, and

Hornady who offer hollow and soft point bullets in weights of from 88 to 130 grains. These developments considerably enhance the usefulness of pistols chambered for the 38 Super — particularly for the reloader.

Since these pistols might be described as “poor man’s Colts,” I decided to work up some handloads as cheaply as possible. I purchased a box of 125-grain Speer soft points for \$6.50, a Lee Loader in 38 Super for \$11.25, a box of primers for \$1.10, and used some Unique I had left over. Excluding the cost of the powder and a powder scale I already owned, I reloaded 100 rounds for \$18.60 compared to the cost of 100 factory cartridges at \$22.10. I realized a savings of \$3.50 for the first 100 rounds including the cost of the new reloading equipment.

I had never used a Lee Loader, but quickly became resigned to the fact that patience is a virtue. The Lee is slow, slow, slow; but it gets the job done. The first step is decapping which consists of knocking out the fired primer with a rod. The next is resizing where the lubricated case is driven into the sizing die with a plastic mallet. This was where the work started, and After I sized 100 cases that was all I cared to do that night. Unlike revolver cartridges which are oft en only neck sized for target loads the 38 Super must be full-length resized to insure positive function.



**Star military (top)**, Colt 45 Automatic (middle), and Llama Extra (bottom) field stripped. The similarity of the three pistols is apparent. All use the basic Browning design. The Star differs from the Colt and Llama in that its hammer spring is directly below the hammer instead of being housed lower in the grip. The Star also uses all coil springs, has a simplified thumb safety, and does not have a grip safety.

The next evening I reprimed the sized cases. Lee would have the user reprime as he is knocking the case out of the resizing die, but I found a better feel is obtained if repriming is done separately.

Bullet seating proved to be the most exasperating operation. To seat the bullet, the primed and powder-filled case is placed back into the sizing die, the die placed on the decapping base, and the bullet pounded into the case using the mallet and bullet seating rod. This rod is attached to the priming

chamber and is adjustable for bullet seating depth. The three pieces have to be held and aligned with one hand while pounding with the other. The problem is to keep the base aligned with the sizing die to prevent bullets from canting. Canted bullets could be pounded until the soft lead nose resembled a wadcutter, but they would not enter the case. Even when the bullet seated easily, the cone-shaped end of the seating rod deformed the bullet nose into a spire point.

Of the first 50 rounds, three were so deformed they were discarded, 16 had off-center bullets, and 31 were sufficiently uniform to expect some sort of accuracy. Some sort of accuracy — damn poor — was all I did achieve, and I realized I would have to make some changes in loading techniques and bullets to obtain reasonable results.

I bought a box of Remington 124-grain metal cased bullets which would resist deformation during reloading. I would have preferred the 130-grain bullet Remington loads in 38 Super, but had to settle for the lighter 124- and 100-grain 9mm Luger bullets because they were the only full metal cased 9mms carried by the distributor. If I could obtain reasonable results with these, there was some possibility of developing good hollow point loadings using a variety of available bullets.

To solve the bullet seating problem, I purchased a woodworker's vise to use as a press and mounted it on a heavy plank. Better bullet seating was obtained, but I still had bullet alignment problems. At the start, I chamfered the case mouths with a pocket knife, but found that a \$7.50 deburring tool gave much better results.

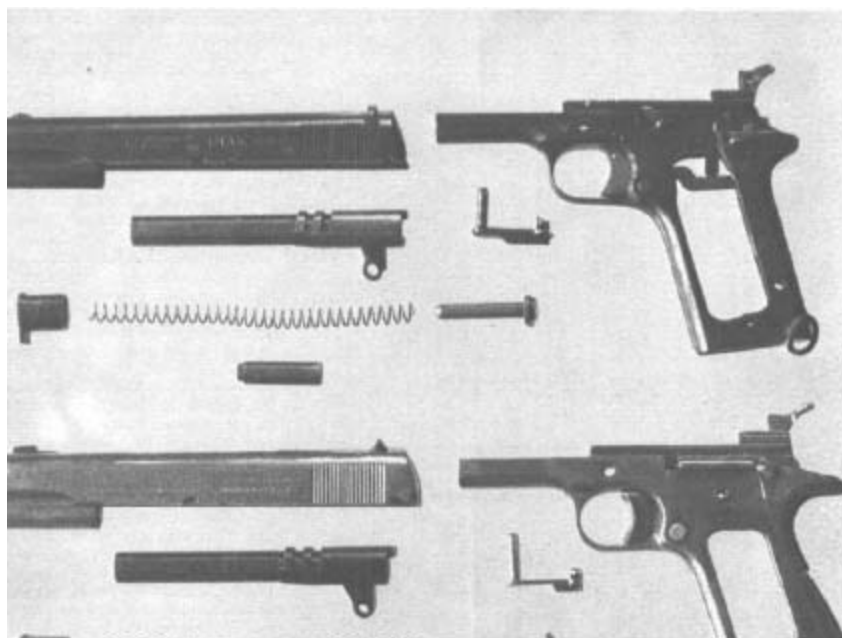
Using the vise, the deburring tool, and the metal cased bullets helped tremendously, and both the Llama and Star shot the new loads reasonably well. After some experimentation with different charges of Unique, I found 5.4 grains gave good accuracy and functioned well in both pistols. This load is 1.1 grain less than the 6.5 grains Speer recommends as the starting load for the 38 Super in their manual. The historic tendency with reloading the 38 Super has been to concentrate on loads at the high velocity end of the scale, but for worn barrels reduced velocity loads gave much better accuracy.

This is one case where less definitely gives more.

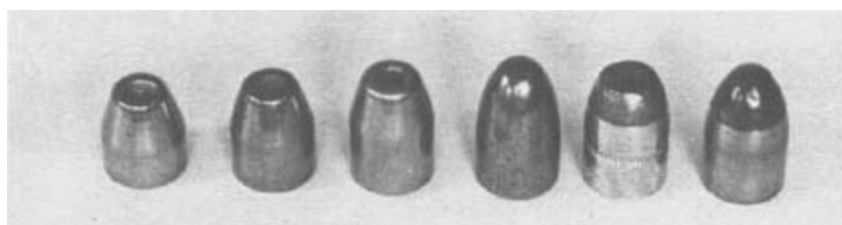
Reduced velocity loads, target loads, and small game loads are often considered one and the same. They are usually assembled with lead bullets, have velocities between 700 and 800 feet per second, and have as their



chief virtues high accuracy and low recoil. The loads listed below differ in that full jacketed or nearly full jacketed bullets are used and many are hollow pointed. This approach was used to reduce leading which would have otherwise been a serious problem in the badly pitted barrels, to promote better feeding, and to make the loads as effective as possible on small game. There is no hope of obtaining reliable expansion at these velocities, but the jacketed hollow points did promise to be non-leading and better killers than jacketed round nose bullets.



**From left** — Colt 45 magazine, Llama magazine, and plated magazine of the Star. The Llama's magazine has indentations on both sides to adapt it to the 38 Super, the same method used by Colt. The modified magazine and modifications to the frame and slide gave Colt a new cartridge and pistol at a fraction of the cost of an entirely new design. The Star's magazine was designed for the 9mm Largo and did not require modification.



**From left** — 88-gr. Speer jacketed hollow point, 100-gr. Speer jacketed hollow point, 115-gr. Sierra jacketed hollow point, 124-gr. full metal cased

Remington 9mm Luger bullet, 125-gr. Speer jacketed hollow point, and 125-gr. Speer jacketed soft point.

Unique and 700-X powders were chosen because they represent a fast and moderately fast powder commonly used in shotgun and pistol reloading. Unique is an extremely versatile powder that works well with heavier bullets in many pistol calibers, and 700-X does nicely with lighter bullets.

A selection of bullets ranging in weight from 88 to 125 grains was obtained. Most of the bullets are made by Speer, and the jackets on the 88- and 100-grain bullets extend very slightly beyond the edge of a large hollow point cavity. These proved to feed better, particularly in the Star, than heavier bullets where lead extended beyond the jacket.

Starting loads were selected by reducing the powder in increments from the lowest charge listed in the Speer tables. When the lightest loading was reached that would reliably function the guns the charge was increased until best accuracy was obtained.

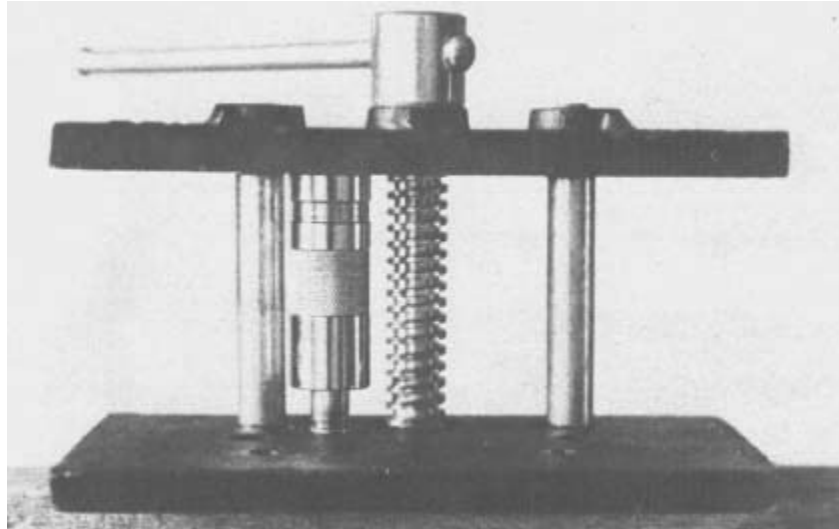
Loads were considered accurate when they would group within the 5½-inch 9 ring of the 25-yard pistol target. Pistols designed for target use are expected to group within the 1¾-inch X-ring at 25 yards, but for issue pistols with bad barrels consistent 5½-inch groups are acceptable. The Llama with the 124-grain Remington bullet often produced 4-inch five-shot groups at this range with occasional clusters of three shots grouping within 1½ inches.

The Llama proved to be an easy pistol to work with, and digested soft point and hollow pointed bullets without a hitch. The Star was another story. It would only function reliably with the 100- and 124-grain full metal cased round nose bullets and the long jacketed Speer hollow points.

Although the loads charted are low velocity loads, some cautions need to be observed. All of the listed loads have a total length of 1.280 inches. If bullets are seated deeper the charges of 700-X need to be reduced to prevent potentially dangerous pressures.

While loads ranging from 5.1 to 5.7 grains of Unique gave no indications of high pressures when used with the 124- and 125-grain bullets, changes of a few tenths of a grain of 700-X are significant. This powder, like Bulls-eye, should only be used with reduced velocity loads, and no attempt should be made to use 700-X with bullets heavier than 100 grains in 38 Super or to

assemble high velocity loads. Excessive pressures may well be reached before the 1200 feet per second velocity level is obtained. No indications of high pressures were seen in the loads listed in the table.



**Resizing** with the Lee Loader. A woodworker's vise made full-length resizing the 38 Super cases much easier. The vise is attached to a four inch thick block of wood about a foot square which is braced between the feet when cases are resized.

Reduced Velocity Loads For 38 Super				
Bullet	Bull. Weight grains	Powder	Charge grains	Notes
Remington FMC .354	124	Unique	5.4	Best functioning and most accurate load.
Hornady FMC .355	100	Unique 700-X	6.0 4.2	Functions well, but not as accurate as FMC.
Speer JHP .355	125			Bullet nose deformed so much during reloading loads could not be developed.
Speer JSP .355	125	Unique	5.4	Bullet nose deformed during reloading and when being fed from magazine. If bullet bases were lubricated during reloading better loads resulted.
Sierra JHP .355	115	Unique	5.8	Functioned well in Llama, but often failed to feed from Star's magazine.
Speer JHP .355	100	Unique 700-X	6.0 4.2	Best JHP loading in Star and Llama. Difficult to seat bullet without canting in Lee Loader.
Speer JHP .355	88	700-X	4.5	Almost impossible to reload without canting these short bullets. Load functioned well in Llama and Star.
FMC—Full metal cased bullets. JSP—Jacketed soft point. JHP—Jacketed hollow point. All loads have an over-all length of 1.280 inches. All loads assembled in Remington plus-P cases and used CCI 500 small pistol primers. Base of hollow point and soft point bullets lightly lubricated with Lyman bullet lubricant to promote easier bullet seating. These loads worked safely in the author's pistols; however, no responsibility can be accepted for handloads assembled by others.				

Reduced velocity loads, rough bores, and jacketed bullets can theoretically lead to bullets sticking in the barrel or jackets separating from bullet cores. Neither problem was observed during testing, but charges should not be reduced to the point that the pistol fails to function.

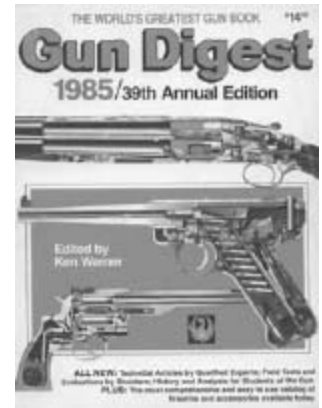
After shooting 1000 rounds through the Llama Extra and perhaps half that number through the Star, I had some definite opinions about the pistols. The Llama was easier to shoot because of its larger grip, wide Patridge sights, heavier weight, and longer sight radius. The smooth backstrap of the Star became slippery when my hand sweated in the 95 degree temperatures of the summer shooting sessions. I found myself doing most of the load testing with the Llama not only because it was easier to load for, but simply because it felt better to shoot.

I have little doubt that Star introduced the present Star Super, which even more closely resembles the Colt 45 Auto, to overcome this handicap. That they succeeded in significantly improving the pistol is attested by the fact that the new Star Super was adopted by Spain's military forces.

Even though both pistols were made some 50 years ago, there were no mechanical failures. Considering that they digested loads ranging from the hot Remington plus-P ammunition, which exceeds the 9mm Largo's ballistics by a considerable margin, to reduced velocity loads without any problems proved they are not the worthless pieces of Spanish junk some think them to be.

During all this, half a dozen cotton-tails, one red fox, and a feral house cat have been taken with the Llama using reduced velocity loads. All were killed with a single shot, and confirmed that I had restored a pistol to useful life by crafting some handloads that would shoot well in its badly pitted barrel.

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## The Uncolts: U.S.-Made Pistols Of 1911 Pattern

■ J.B. Wood

**I**F JOHN MOSES Browning were alive today, he might be pleased to see how his design of 75 years ago has lasted and, in recent years, proliferated. In his own time, he saw his 1911 U.S. Government Model pistol produced in a commercial version by Colt, and made for military use by Colt and several other government contractors. In Norway, a slightly-modified version was made under license as their Model 1914, and numerous unlicensed copies were made in Spain and elsewhere. A licensed copy was also later made in Argentina for military use.

Down through the years, the Colt company has continued to make the pistol. Along the way, they have made several modifications to the original design, but the basic pattern has been unchanged. In addition to the original 45 Auto chambering, the pistol was made available in 38 Super, and later in 9mm Parabellum. A shortened version in all three calibers was offered as the Commander, with a choice of frames in steel or lightweight alloy. A

target model of the full-sized gun, the National Match, later evolved into the excellent Gold Cup.

Inside, the Colt engineers have made some subtle changes. Lately, a collet-type muzzle bushing grips the barrel for more consistent positioning, and the introduction of this feature gave the pistol a new designation, “Mark IV/Series 70.” More recently, the addition of an automatic internal firing pin block safety system created the “Mark IV/Series 80.” Last year, Colt introduced their “Combat Grade” model, with special sights and ejection port, a wrap-around Pachmayr rubber grip, a longer trigger, and a beveled magazine entry, among other features.



Meanwhile, since the basic design has long been out-of-patent, others have wisely decided to make their own versions of the old war-horse. These range from virtually identical copies to very innovative extensions of the pattern. One stainless-steel copy, the Vega, was short-lived, but the rest are doing quite well. Over the past few weeks, I’ve tried seven of them, and all are a credit to the original Browning concept.

### **AMT**

The first successful stainless-steel version, Harry Sanford’s AMT Hardballer, is presently offered in both a standard size and a Long Slide, the latter with seven-inch barrel. Other features of both models are extended

safety and slide latch levers, fully adjustable rear sights, and skeletonized triggers with adjustable stop screws. The grip is a wrap-around rubber type by Supreme. A raised and ribbed sighting plane runs the full length of the slide top.

The mainspring housing is straight, with vertical serrations, the one favored by many serious shooters. Firing the Long Slide model was, for me, an interesting and educational experience. Up to now, seeing photos of some of the custom long slide pistols, I had always wondered ... well, now I know. The recoil and muzzle whip are reduced, and the sight picture, because of the extended radius, is enhanced. The extra two inches of barrel length give a slightly higher velocity, and the accuracy is absolutely deadly. Finally, I expected the handling to be a bit awkward, and it wasn't.



**The Thompson** by Auto-Ordnance carries the old bullet logo, true-to-type fit and finish.





**The Arminex Trifire**, long slide version, has all the tricks, can go to all three: 45, 38 Super, 9mm.



**The Randall Service Model** is all stainless steel, has surface differences, but runs mostly true to 1911 form.

The AMT guns have matte finishes on all surfaces except for the side flats of the slide, the magazine, the barrel, and the plug and bushing. The overall fit and finish are excellent. At the range, the functioning was perfect.

(I'll note here that I fired all of the guns with regular 45 full-jacket rounds by Federal and Hornady/Frontier. I was firing them for functioning and accuracy, and not as combat pieces, so I didn't try hollow points.

Remarkably, even though most of these guns were in-the-box new, there was not a single incident of misfeeding or incomplete ejection — tribute to Mr. Browning's design, and good ammunition.)

### **Detonics**

Another stainless-steel entry has been around for a while in abbreviated form — the Detonics. The finely-made small guns have now been joined by the Scoremaster, a full-sized 45 that has several special features. Starting from the top, there's a fully-adjustable Bo-Mar rear sight, and a double-pinned ramp front sight with an inset orange "T" in its rear face. The barrel is pure Detonics design, with a coned front section that is hand-fitted to the slide interior, so there's no bushing. The buffered recoil spring system is also of Detonics design.

A graceful full-beavertail extension tops the grip safety, to eliminate any chance of hammer-bite. The manual safety is of standard design, but is ambidextrous, and the opposite unit on the right side is a beautiful piece of engineering. The grip is wrap-around rubber by Pachmayr, and the rear of the straight mainspring housing is also checkered rubber. The magazine entry is beveled, and the release button is high-profile. The vertically-grooved trigger has an Allen screw for stop adjustment.



**The new Detonics Scoremaster** is the firm's first full-size 1911. Barrel and allied parts are different.



**The MS-Safari Arms** Enforcer is the small one; they make them big, too, with a wide array of options.



**The slide and frame** are by Essex, the rest from assorted sources; it works really well, Wood says.

This pistol was obviously designed for serious competition, not casual shooting, and my range-testing methods sometimes border on plinking. Even so, it performed beautifully. The unique “coned” effect at the muzzle results in an external diameter of .695”, a little over 11/16 of an inch, and

this gives the effect of a “bull barrel” — a slight muzzle heaviness and reduced whip during recoil. Accuracy was outstanding. The fit and finish are up to Detonics standards — impeccable.

### **Randall**

A newcomer to the stainless-steel 1911 group is the Randall, and from the start this California firm has concentrated on one of the old design's main points, reliability. This is not to say, though, that they have neglected other important features. The Randall is made 100% of stainless steel, a special alloy, and the barrel has ten-groove rifling. A solid recoil spring guide is used. The ejection port is opened, and the magazine entry is beveled. The gun is available with either fixed combat-style sights (stainless, but black-finished), or with fully-adjustable Millets. Long or short triggers are optional, and both have a stop-screw.

On the Service Model, Randall stays very close to the original pattern, except for the special recoil spring guide and a combat safety that is slightly extended at the front of the lever. The Randall has the arched mainspring housing of the 1911A1, with vertical grooving. The finish is satin, slightly brighter on the sides, but still not highly reflective. The grips are checkered walnut, and on my Randall they have a nice grain pattern. The fitting of the steel parts is precise, and all lines and flats are very clean.

At the range, I found that the Randall performed as well as it looked. I didn't fire from a rest at formal targets with any of the pistols, but some of my casual targets were smaller than the standard center bull, and the pistol hit them with regularity. Later, when there's time and the weather is better, I'm going to find out if that ten-groove barrel is as superior as they claim. For now, it's enough to say that it will consistently nail a soft -drink can at 25 yards, and that's very good. In addition to the Service Model, there are five others, including lightweight and shortened versions, and this year they introduced a true mirror-image left -handed model.



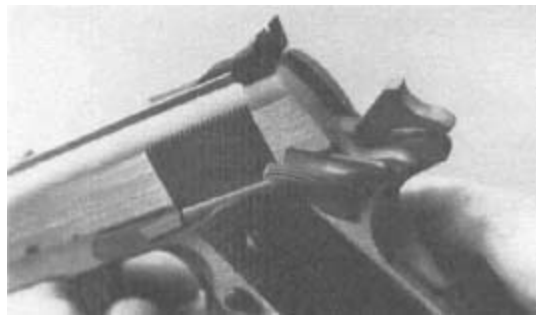
**The AMT Handballer**, in standard and long slide versions, is the “original” in the modern class of UnColts.



**The finger extension** on the front strap of the MS-Safari Enforcer does aid control.



**Although of Spartan** design, the Auto-Ordnance pistol has a long trigger with an adjustable stop.



**The safety lever** on the Randall Service Model is slightly extended; the sight is by Mitchell.

### **Auto-Ordnance**

Moving out of the stainless-steel group, there's a pistol that probably comes closest to the military-issue Government Model, and it's the Thompson by Auto-Ordnance. If the name is familiar, it's because they're also the makers of the modern-day version of the famed Thompson Submachinegun and the Thompson SemiAuto Carbine. In fact, the pistol carries the well-known bullet/signature trademark on its slide and on the grip medallions. The Thompson is supposed to be a Spartan, no-frills gun, and it costs somewhat less than the others, but there are a few surprises.

As standard equipment, it has a long-style trigger that is screw-adjustable for over-travel, and an arched, checkered mainspring housing. The hammer is the old, comfortable wide-spur model with fine checkering, and I'd swear that the smooth magazine is original military issue from a high-quality supplier. For a pistol that's intended to be utilitarian, the fit and finish are surprisingly good. The surface is a nice blue, matte on the top and undersides, and a medium polish on the sides of the slide and frame.

The sights are the standard fixed military type, and on my pistol they were perfectly aligned for a center hold at 25 yards. For those who are afflicted with World War II nostalgia, the Thompson will have a magical effect — it feels exactly like a GI-issue 45, and to a great extent also looks like one. It does, however, shoot much better than most of them did. Auto-Ordnance also offers the same gun in 9mm Parabellum and 38 Super.

### **Essex**

The next one on our list is not available as a finished pistol. The Essex Arms Corporation of Island Pond, Vermont, makes a nicely-finished frame and slide, for the shooter who prefers to build his own gun. A while back, a friend gave me an Essex frame and slide, and over a few months time I gradually put together a 45 Auto that has proved to be both dependable and accurate. The finish on my Essex is either a matte blue or very smooth Parkerizing, I've never established which. A wide raised solid rib extends the full length of the slide top, and it has five deep grooves.



**The ambidextrous safety** on the Detonics Scoremaster is especially well-designed.



**The slide latch** and the safety are both extended on the Hardballer.

The front sight cut and aperture were there, but the rear of the rib was left uncut, to allow the individual to decide what type of rear sight was wanted. I chose an MMC combat-style with white outline, and a matching bar-cross front blade. An old-style wide-spur hammer was installed, and a standard safety. All of the smaller internal parts were standard, either U.S. surplus or Colt. The stainless magazine originated from the now-departed Vega.

Rubber wrap-around grips from Pachmayr were used. The barrel bushing, recoil spring unit, slide latch, and one-piece solid backstrap were from Arminex, Ltd. I beveled the magazine entry. Except for that and the mounting of the sights, no other gunsmithing was done. By fortunate accident, the safety and the sear engagement were perfect as installed, and the barrel required no fitting. When one of these Frankenstein jobs is assembled, that's not always the case. By now I've probably put at least a thousand rounds through my Essex, and it has given me no problems with any type of factory ammo.

### **MS-Safari Arms**

Long before I actually fired one, I looked at the photos of the MS-Safari Arms Enforcer, and wondered about the "hump" on the frontstrap, between the second and third fingers. Was it comfortable? Did it have any real purpose? Now that I've fired an Enforcer extensively, I have the answers: Yes, and Yes.

MS-Safari makes several models, including full-sized and special target/competition versions, but the one I have is their smaller gun. The barrel is 3 15/16 inches, and the height is 5¼ inches, with the shortened magazine holding six rounds.

On an MS-Safari pistol, you can choose the features you want, such as an extended slide latch, ambidextrous safety, or other items. My gun has both these. The fully-adjustable rear sight is similar to a Smith & Wesson revolver sight, but somewhat heavier. The trigger is long-style, stop-adjustable, and the grips are rubber with a pebbled surface.

The handling qualities are excellent, and the reliability and accuracy were above reproach. I found that the "hump" on the frontstrap gave a more secure grip, and it was a definite help in controlling muzzle whip.

### **Arminex Trifire**

I will admit to a certain amount of non-objectivity in regard to the Arminex Trifire. When it was just in the planning stages, I had many long



conversations about it with my good friend Jim Mongello and, by suggestion at least, I had a small part in its design. When it emerged, the Trifire had several distinctive features. As its name suggests, it is convertible from 45 Auto to 38 Super and 9mm Parabellum, without changing the slide.

While it has the “classic cosmetic configuration” of the Government Model, it abandons the frame-mounted sear-block safety in favor of a slide-mounted firing pin block type that does not drop the hammer. The firing pin can be manually locked during loading, and the pistol can be carried cocked-and-locked. It can also be dryfired forever with the hammer never touching the firing pin.

The Trifire has an Arminex self-contained recoil spring unit and a solid one-piece backstrap. Both are available as separate accessories for use on other 1911 pistols. The solid backstrap has a subtle shape that is exactly right, and the absence of a grip safety is welcome.

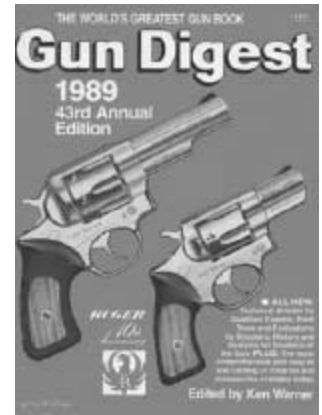
A fixed combat-style rear sight or a fully-adjustable target sight installs in the same milled space at the rear of the slide, and the retaining cross-pin is extra heavy. The ramp-style front sight is double-cross-pinned to the slide rib. The rib is low and wide, with lengthwise grooving. The hammer is a ring-type, and the slide latch is slightly extended. An ambidextrous safety system is available.

The trigger is beautiful. Wide and glass-smooth, it's made of beryllium alloy. At the range, the Standard Trifire performance and handling qualities were outstanding. The externally-mounted pivoting extractor and wide ejection port put the fired cases neatly in a group for retrieval.

I was favorably impressed with all these pistols. Once, more than 30 years ago, I spent an afternoon shooting a government-issue 45 at reasonably-sized targets, and my abysmal scores engendered a long-lasting dislike for the 1911 design. If that pistol had been one of the modern versions described above, it would have been a different story.

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1989



## Early Rivals of the Model 1911 45 Automatic

It was a well-attended race, but most of the entrants were also-rans. ■ John Malloy

**P**ERHAPS no single automatic pistol is better known or has had more influence on automatic pistol design than the Browning-designed Colt Model 1911 45. It dominated the big-bore pistol scene of this century to such an extent that little memory is left of its early rivals. Yet these pistols, also-rans in the race against the Colt, should not be forgotten, for their influence still lives today.

Most people with an interest in fire-arms know that the Colt 1911 45 automatic was chosen, after some of the most extensive testing ever conducted, in a series of trials that spanned the 4-year period between 1907 and 1911. Then, in 1917, only 6 years later, the United States entered World War I. Battle experience proved the merits of the new pistol. In every instance, the 1911 gave a good account of itself when called upon. In some cases, such as its use in the hands of Corporal Alvin York, its performance became legendary.

The pistol was so good that, hardly more than a decade after the war, copies and modifications of the Colt-Browning design were being made all over the world.

It was so good that its early rivals — pistols that offered different ideas in the 1907-1917 decade — were soon all but forgotten.

The events leading up to the 1907 test trials, which gave the Colt its start to prominence, are of interest. And in those events is the story of the also-rans.

The 45-caliber Colt Single Action Army revolver had been replaced in Army hands by Colt's 1892 double-action design of 38-caliber. During the Philippine insurrection of 1899-1901 and continuing encounters with Moro tribesmen, it was found necessary to rush the obsolete Single Actions out of storage and back into service, and a quantity of 45-caliber 1878 Colt double actions were purchased. The stopping power of the old 45s proved to be far superior.

Thus, the search for a new sidearm began in the early 1900s with the consideration that it be of 45-caliber. Although semi-automatic pistols were coming into use, the cavalry firmly favored the revolver. The stage was set that any “automatic” considered must have reliability equal to that of the revolver and be of 45-caliber.

In anticipation of the tests, Frankfort Arsenal had designed two cartridges — a rimmed one for revolver use, and a rimless one for the automatic pistols.



**Having its 1905 45 pistol already in commercial production before the test trials gave Colt a decided advantage over its rivals.**

The rimless version was very similar to a commercial round produced by Winchester Repeating Arms Co. for Colt since the spring of 1905. The WRA cartridges were made for Colt's new 45 automatic pistol, introduced in the fall of 1905. The Army round differed primarily in having a slightly longer case (.911- over.898-inch) and a slightly heavier bullet (234 over 200 grains.)

With the benefit of hindsight, it is difficult to understand why the Army, which had certainly been aware of Colt's development work, felt it needed a special round. Indeed, problems developed with the Frankfort Arsenal cartridges, and commercial ammunition (with a heavier 230-grain bullet) was used during much of the testing.



**Because specimens** are often on public display, the Savage 45 is probably the best known of the early rivals. This one is in the Metzger collection at Texas A&M University.

Invitations to submit pistols for testing were sent on January 31, 1906, to over 20 companies and individuals believed to be interested in developing military sidearms. The invitations included cartridge specifications (for the Frankfort cartridges) and offered to furnish a supply of ammunition to assist in preparing the pistols.

When the board convened on January 15, 1907, eight applicants had submitted nine general designs. Three were revolvers and six were automatic pistols. The revolvers are of interest themselves, but do not

concern us here. The automatic pistols, at this early stage of history, represented a variety of concepts in competition for the first time.

The Colt was clearly the front-runner. The others were:

1. The Bergmann
2. The Knoble (actually two versions; one double action, one single action)
3. The White-Merrill
4. The Luger
5. The Savage

Three of the entries — the Bergmann, Knoble and White-Merrill pistols — were rejected early in the tests.

The fate of the Bergmann was sealed with this rather terse excerpt from the Board's report:

*“An attempt was then made to fire 20 rounds to observe the working of the pistol, but it was found that the blow of the hammer was not sufficient to discharge the cartridges, and the test was discontinued.”*

There is an air of mystery surrounding the unbelievably poor showing of the Bergmann 45. It seems incredible that a pistol that had obviously not been testfired with the required ammunition should arrive for these important trials with out any representative, to be tested by persons unfamiliar with its operation.

Theodor Bergmann was a German inventor and industrialist, with a factory complex in Gaggenau, in southwest Germany. Largely through the efforts of his employee, Louis Schmeisser, the Bergmann pistol had become one of the first successful automatic pistols.

Always desiring a chance for military contracts, Bergmann had requested U.S. Army trials of his pistols as early as 1899. In 1903, he requested a test of his latest pistol. The caliber was 11.35mm, using a cartridge similar to the later 45 ACP. Apparently, no such test took place.

In 1905, the 9mm Bergmann pistol was adopted by Spain. Bergmann had subcontracted his pistol manufacture to the Schilling firm of Suhl. Schilling, however, was bought out by Krieghoff, which ended pistol production for Bergmann just as the Spanish contract was negotiated. Bergmann had a contract and no way to fulfill it.

To justify new expanded firearms facilities at his Gaggenau plant, Bergmann needed to obtain other contracts. He got a delay for the delivery of the Spanish pistols, and submitted a 45-caliber pistol to the U.S.

Ordnance Department in June, 1906. In January, 1907, the pistol was tested at Springfield, with the dismal results mentioned.



**Adoption** of the Colt 1911 by the Army halted development of most of its early rivals.



**After World War I**, the superiority of the Colt was firmly established. The pistol is here carried at a 1923 training camp. The young man on the left will later become the writer's father. (Courtesy of Harold F. Malloy)



**In the hands** of World War I troops, the Colt performed so well our military had no reason to consider other designs.

WHY, WITH SO MUCH AT STAKE, DID BERGMANN SEND A GUN TO AN IMPORTANT TEST WITH OUT BEING SURE THAT IT WOULD FUNCTION WITH THE APPROPRIATE AMMUNITION? WHY, WITH COMPANY AGENTS IN both GERMANY AND THE U.S., DID NO BERGMANN REPRESENTATIVE ATTEND THE TRIALS TO DEMONSTRATE THE PISTOL? AT THIS DISTANCE IN TIME, THESE QUESTIONS MAY NEVER BE ANSWERED.

Why did the Bergmann pistol fail so miserably? Why, with so much at stake, did Bergmann send a gun to an important test with out being sure that it would function with the appropriate ammunition? Why, with company agents in both Germany and the U.S., did no Bergmann representative attend the trials to demonstrate the pistol? At this distance in time, these questions may never be answered.

Bergmann, disappointed with this failure, decided it was not economically sound to continue pistol manufacture. The Spanish contract was taken over by the Pieper firm, of Herstal, Belgium, who added their trademark "Bayard." The Bergmann-designed 9mm cartridge remains popular in Spain to this day. Denmark adopted the Bergmann-Bayard pistol in 1910; it remained the official Danish side-arm until 1946.

Theodor Bergmann retired from automatic pistol development just as that type of arm was coming into its own. One can only speculate as to what

might have occurred had the Bergmann pistol made a satisfactory showing at the 1907 trials.

Faring little better than the Bergmann test pistol were the two pistols submitted by W.B. Knoble of Tacoma, Washington. The 1907 report states, "... several efforts to fire these weapons showed that they were so crudely manufactured as to render any test with out value ..."

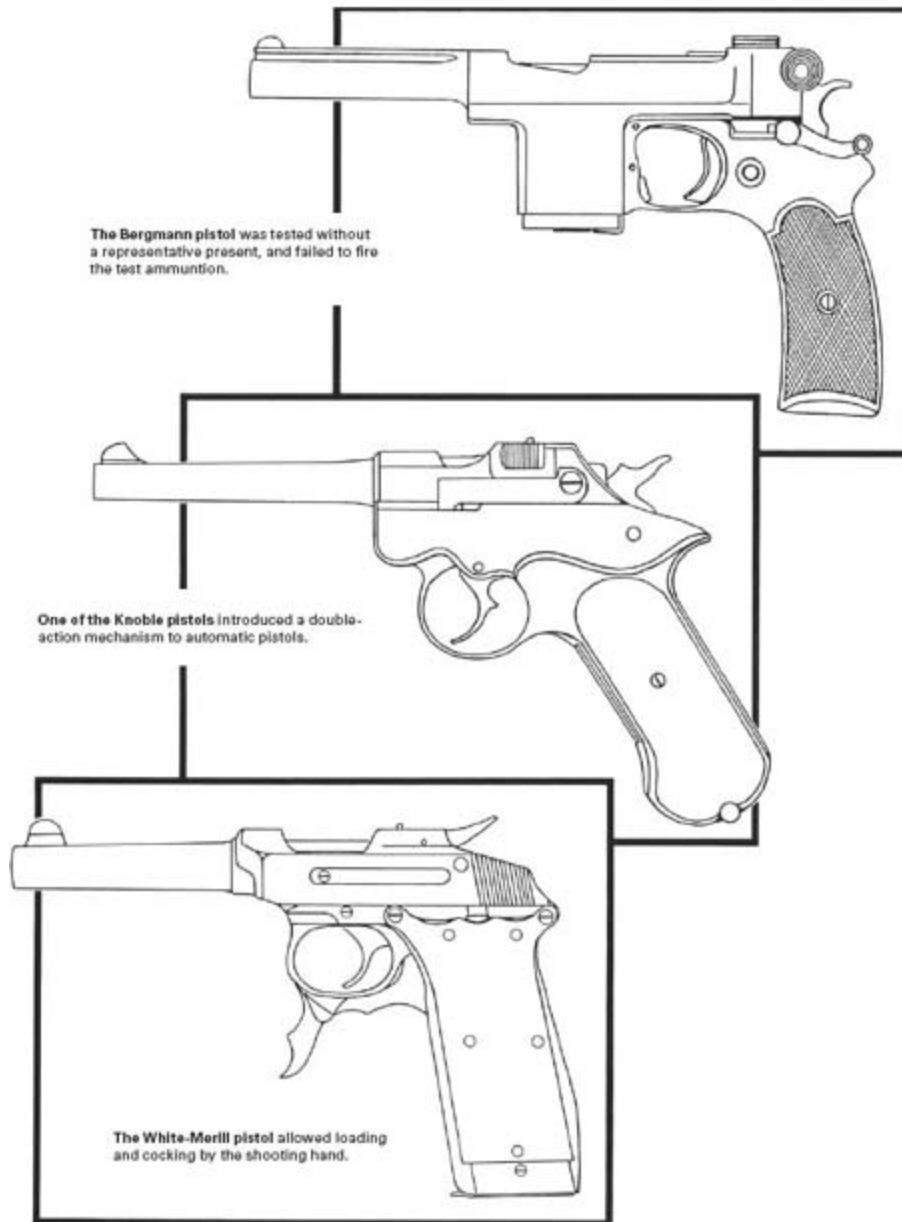
Knoble began working on automatic pistol designs about 1904 and made several prototypes. For the 1907 tests he prepared both double-action and single-action versions in 45-caliber. The double action is of special interest; it was a very early use of that feature in a semi-automatic pistol.

Knoble's plan was to have his pistols represented by von Lengerke & Detmold, New York outfitters. However, that firm dropped Knoble in order to demonstrate a planned 45 pistol by Mauser. The Mauser design, however, was never submitted. And when Mauser withdrew, so did von Lengerke & Detmold.

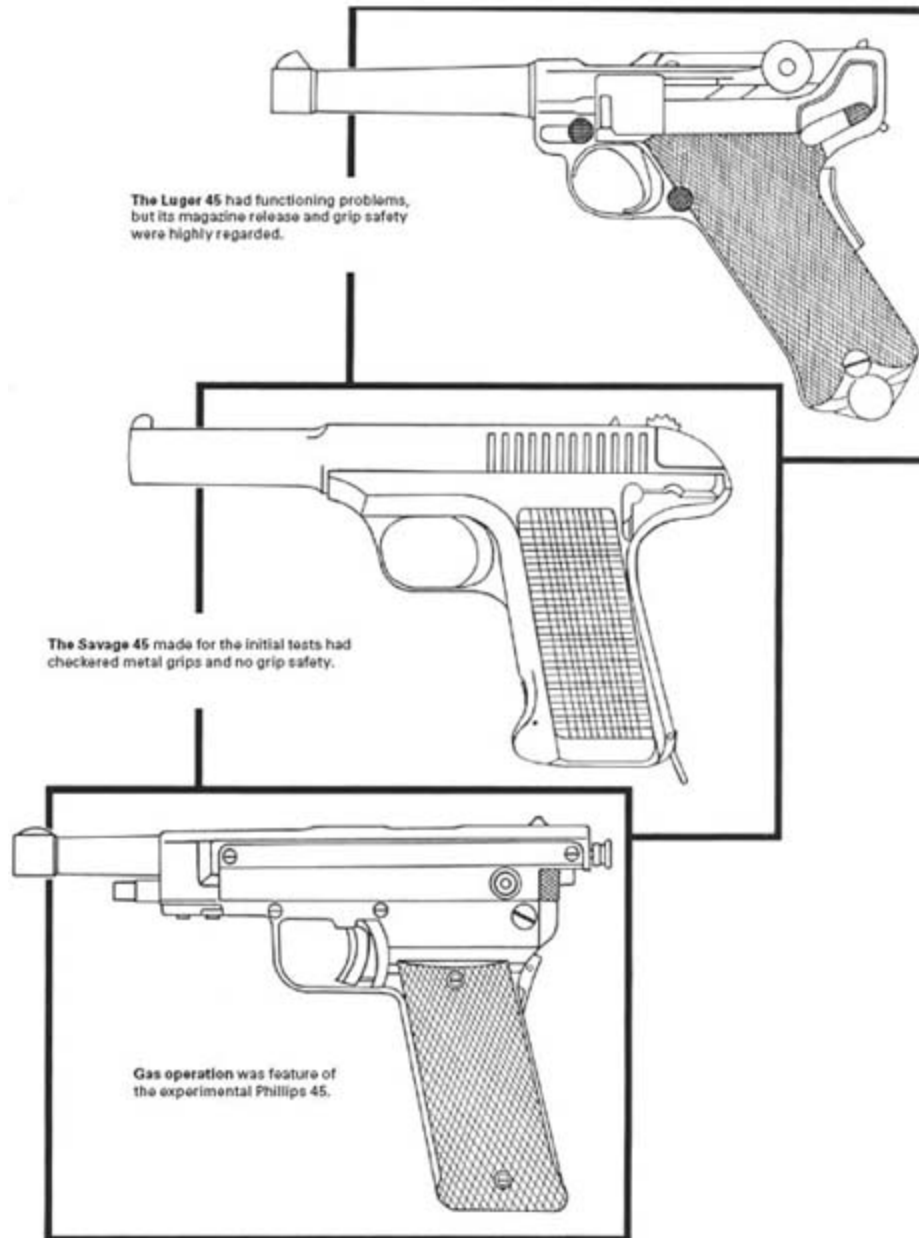
Knoble's pistols were tested with out anyone who knew enough about them to keep the roughly-fitted prototypes functioning. The failure of his designs discouraged Knoble from further work with pistols. Although he retained his interest in firearms, his later efforts were all shoulder arms, and none gained prominence.

The White-Merrill pistol fired 211 rounds before the test was discontinued for unsatisfactory functioning.





The feature most interesting about this arm was the special lever which allowed loading and cocking by the shooting hand. It could be loaded by means of a 10-shot stripper clip as well as with detachable magazines. The left grip was made of transparent material so that the number of rounds in the magazine could be seen. Both the front sight and the rear sight were fixed to the barrel, and accuracy was good. All-in-all, the pistol had much to recommend it, but at that early stage of development, it could not compete.



Joseph C. White and Samuel Merrill, the co-inventors, had formed a corporation in Boston, Massachusetts, in order to promote their designs, and had patented at least one other method of one-hand cocking. After their 45 entry had been rejected, they discontinued further work on it. They worked on two quite different pistols of 38-caliber, but by 1910 they seem to have given up pistol work and turned their efforts to automatic rifles. None of these achieved any success.

The 45-caliber Luger pistol was an enlarged version of the 30-caliber 1900 Parabellum pistol which had found favor in Germany and elsewhere.

It was the only test pistol submitted that had a grip safety, and one of only two that allowed ejection of the magazine by the shooting hand. These features were viewed favorably by the board and, indeed, the final victor — the Colt 1911 — incorporated both of them.

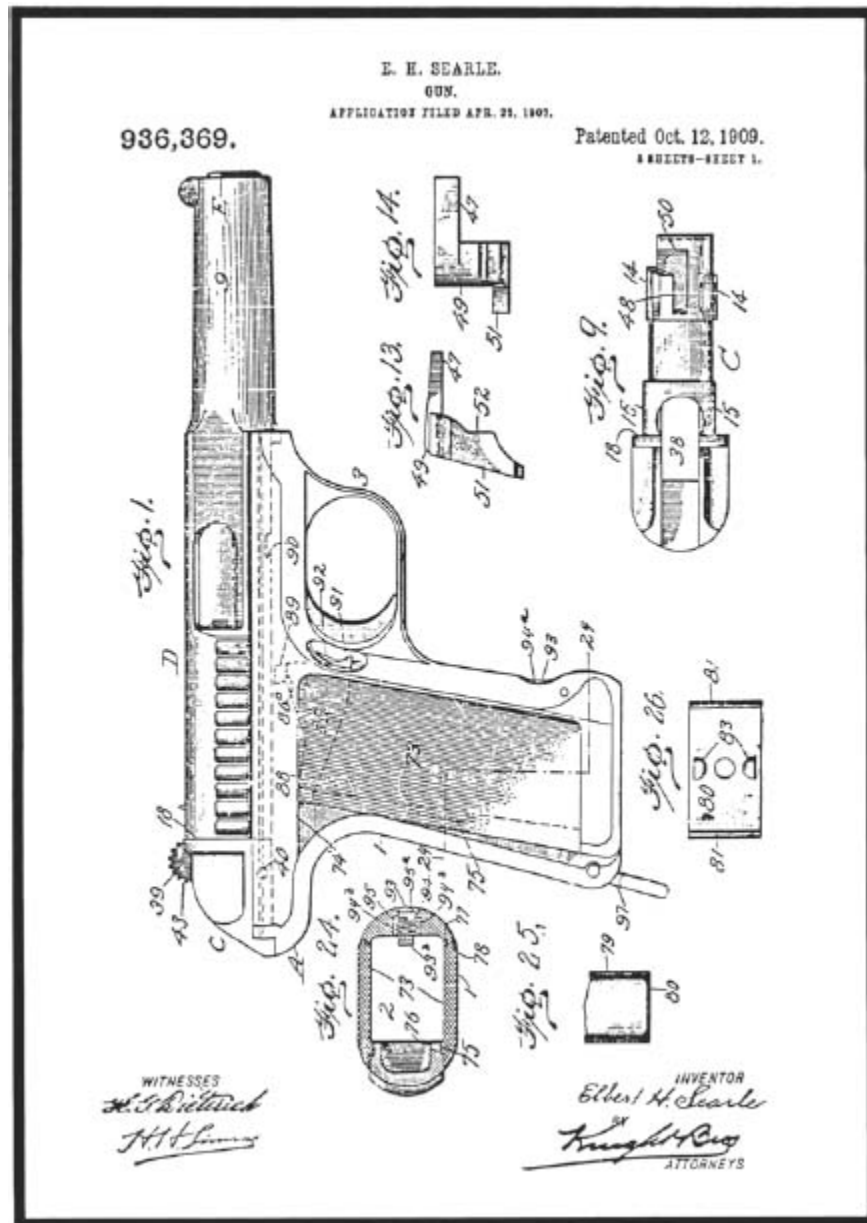
The main objection to the Luger was that the toggle-joint action closed by the momentum of the moving parts, and not by positive spring action. This design required ammunition of high pressure level. Luger brought with him a supply of German-loaded cartridges, and at his request, the special ammunition, as well as that supplied by Frankfort Arsenal, was used in the tests. A total of 1022 rounds was fired. The Luger cartridges did not function appreciably better than those the Arsenal supplied, and most malfunctions related to feeding and final closing of the breechblock.

The opinion of the Board was:

*The Luger automatic pistol, although it possesses manifest advantages in many particulars, is not recommended for a service test because its certainty of action, even with Luger ammunition, is not considered satisfactory ...*

However, the Luger 45 was to be given another chance. The Board authorized the purchase of 200 each of Colt and Savage pistols for field tests. Colt readily accepted, but Savage was unwilling to tool up for such a relatively small production run. Whereupon, the contract was offered to Luger.

DWM apparently accepted the contract, then backed out shortly after acceptance. The 45 was probably enough different in size and contour so that existing machinery could not be used, and, like Savage, the firm may have been reluctant to redesign production facilities for a small contract. They may also have felt certain of the acceptance of their new 9mm pistol by the German government and wished to devote attention to preparations for its production. That pistol was indeed adopted in the following year as the P.08.

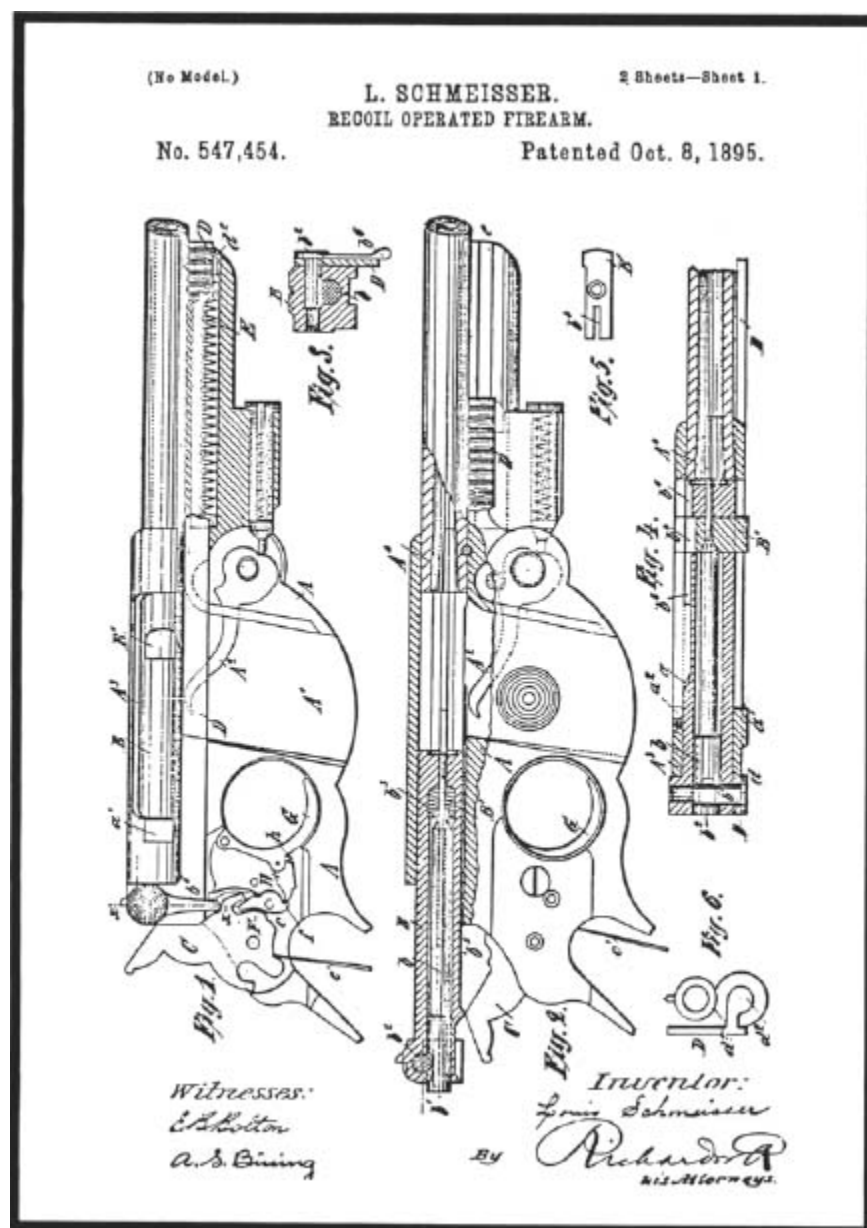


**Searle's patent** illustration shows a pistol that was essentially the Savage 45 of the initial tests. Note the large butt opening for the staggered-column magazine.

The failure of DWM to supply Lugers for the service tests gave Savage a chance to reconsider. Their pistol had been judged almost the equal of the established Colt, and lucrative future contracts might be awarded — a powerful incentive to the small company, then just 12 years old.

Savage Arms Company had been formed in 1894 by 37-year-old inventor Arthur Savage to produce his hammerless lever-action rifle. By the turn of

the century, the company was looking for ways to expand its product line. About 1905, the company was approached by Elbert H. Searle of Philadelphia and his financial partner William D. Condit, of Des Moines, concerning a new automatic pistol invented by Searle. An arrangement was made whereby Savage would develop the pistol, and Searle would work with Savage for that purpose.



**This 1895 patent**, assigned to Bergmann, suggests that Louis Schmeisser was responsible for the basic Bergmann pistol design.

When the test trials were announced, Savage and Searle produced a 45-caliber specimen. The pistol had a rotating barrel which was held to the slide by a lug through a very small rotation of about 5 degrees. Rotation was supposedly resisted by the inertia of the bullet passing through the rifling.

The actual mechanics of this system have inspired considerable discussion. It seems safe to say that the barrel and slide are indeed locked at the instant of firing, but they unlock very rapidly. For all practical purposes, it was a delayed blowback system, with attendant heavier recoil than true locked-breech designs.

Containing only 34 parts, the Savage pistol was noted for its simplicity. The simple design enabled it to function well following the dust and rusting tests, and its overall functioning was actually slightly better than that of the Colt. Like the Luger, the magazine could be released by the shooting hand. The position of the latch on the lower front grip frame allowed release by the little finger of either hand. The innovative staggered magazine held eight rounds in a relatively short grip.

It has been reported that one or more of the original 1907 prototypes was lost or stolen during return to the factory after the tests. If this is so, it may have been partly responsible for the company's initial rejection of the field trial contract. Without the original test guns to examine, planning improvements would have been difficult.

Certainly, theft played a large part in the history of the Savage 45. The original shipment of 200 field trial pistols arrived at Springfield five short. Contemporary rumors credited the shortage to theft by foreign agents. Savage shipped five replacement pistols within a few weeks. However, many of the pistols developed problems with the magazines feeding improperly or unlatching prematurely. The 200 guns were shipped back to the factory for modification. This time, 72 of them were lost or stolen in transit. One can imagine Savage's frustration, but the company built more pistols, and the full number was tested in troop tests during 1910–1911.

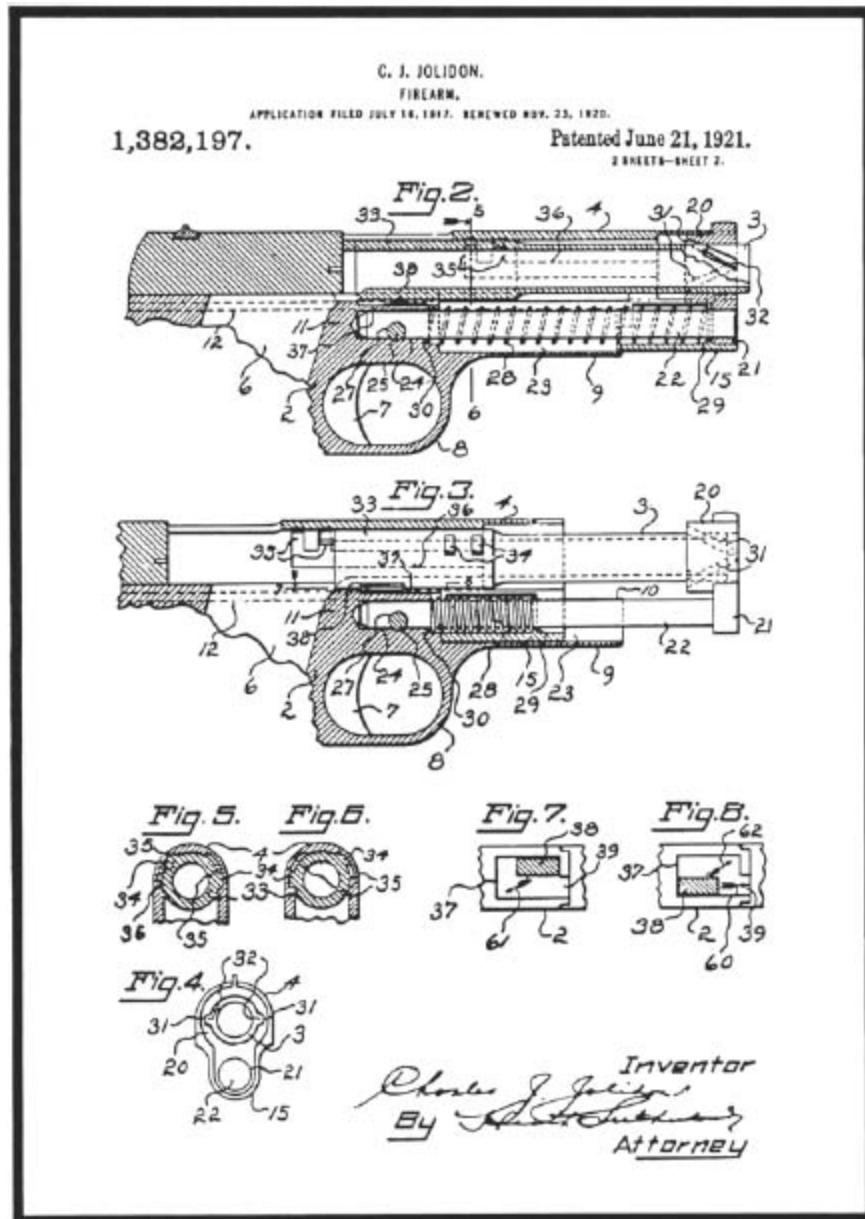
The heavy recoil of the Savage worked against it. One Ordnance tester was reported to have said that 500 rounds from the Savage was equivalent to 2000 rounds from the Colt. The recoil was not only uncomfortable for the shooter, it was harder on the pistol's own internal parts.

The end came during the final 6000-round endurance firing between the Savage and the improved Colt, in March, 1911. Both pistols fired 1000

rounds with out problems, but the Savage's recoil began to take its toll.

The Colt, with inventor John M. Browning — then 56 years old — looking on, fired through the entire 6000 rounds with out a problem.

The Savage would have outperformed most pistols, then or now, but it could not match that performance. In the final 1000 rounds, the Savage malfunctioned 31 times and five parts developed defects.



**Charles Jolidon's** pistol was a rotating-barrel modification of the Colt 1911. It functioned satisfactorily, but was not adopted.

With the completion of the trials, Savage concentrated on its line of sporting rifles and the Searle-de-signed pocket pistols in 32 and 380 calibers. These scaled-down pistols were selling well, whereas the big 45, having lost the trials, was of relatively little interest to the general public.

There is some question as to how many Savage 45 pistols were made. Only a few prototypes were apparently made for the 1907 trials. Two-hundred had been ordered for the troop trials, but replacement of the stolen guns would have pushed that number to at least 277. It is logical that Savage, with the machinery ready to make a basically good pistol, would have made at least some for civilian sales. Various authorities have estimated the number of such additional guns at between 100 and 300.

The Savage pistol deserves a great deal of credit. With out the tough competition it offered Colt, there would not have been the need to refine the 1911 pistol to the peak of perfection it finally attained.

These trials and the subsequent adoption of the Model 1911 put an end to military efforts to develop a pistol on their own.

In the years between 1907–1909, the recoil-operated Pearce-Hawkins pistol was developed at Springfield Armory. The subsequent competition between the Savage and Colt pistols overshadowed all other weapons, and work on the Pearce-Hawkins was brought to a close.

The Phillips, also developed at Springfield Armory, was a departure from other designs in that it was gas-operated. At least one specimen was completed and tested, but it was not considered for service. The superiority of the new Colt design left little chance for such new developments.

Still, in 1912 another pistol was submitted for U.S. Army trial that had no possibility of serious consideration, but was of interest. From 1904, small quantities of the Danish Schouboe pistol had been produced in a special 11.35mm cartridge. The pistol was manufactured at the Dansk Re-kylriffel Syndikat (DRS), Copenhagen, which produced Madsen machine guns. The pistol's inventor, Jens Schouboe, was Chief Engineer at DRS, and was able to keep the pistol in production in spite of its limited popularity.

Schouboe had started with a 7.65mm pistol in 1903. He wanted to make a large-bore military pistol but was faced with the limitations of his simple blowback system. He found that an extremely light bullet at high velocity would keep pressures within the limits of his design.

The 11.35mm Schouboe pistol was about the same caliber as the U.S. 45, but used a very different cartridge. The case was much shorter than that of



the 45 ACP, but the big difference was in the design of the bullet. A cupronickel jacket covered a core of pine wood, protected at the base by a plug of aluminum. Weight was only about 63 grains. A heavy charge of powder pushed this light bullet at over 1600 fps. Accuracy was not particularly good, but was considered adequate for close-range military use. Penetration was surprisingly good.

Several variations of the 11.35mm Schouboe pistol were made, and it is not certain which one was tested by the U.S. Army at Springfield. The pistol functioned satisfactorily, but interest was focused on the high-velocity round it fired.

With the extensive testing of 1907– 1911 just past, there was no chance for the Schouboe, but after its test, the Ordnance Department made up a lot of 45 ACP cartridges with wood-core bullets. Fired from the 1911 pistol, accuracy was very poor, and such experimentation stopped.

The Schouboe was never popular, even in Denmark. It was, however, the only native Danish pistol. For a time, the pistols were awarded as marksman-ship prizes for Army officer cadets.

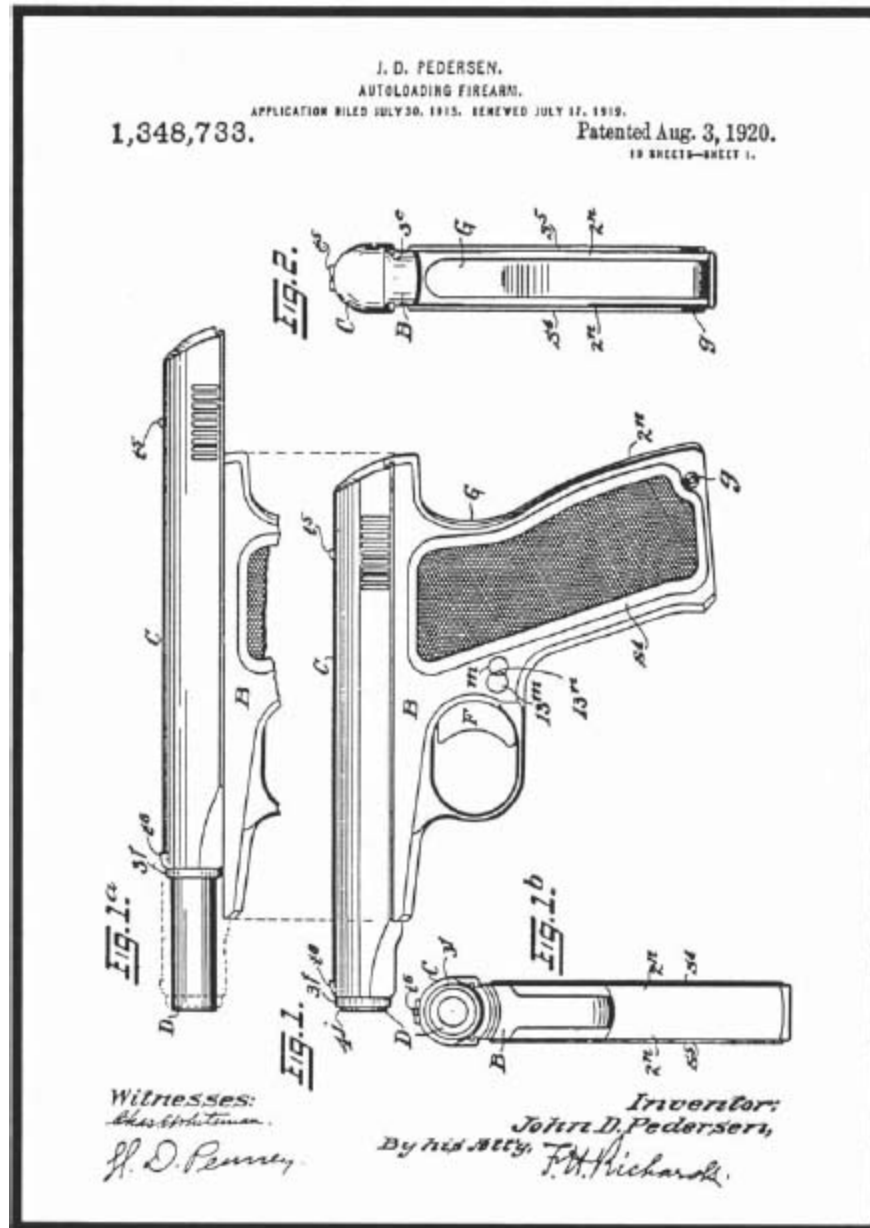
When Jens Schouboe retired from DRS in 1917, production of his pistols ended. In all probability, no more than 500 to 600 11.35mm pistols had been made.

As world war spread across Europe after 1914, there was renewed interest in military arms, and other pistols were offered for consideration.

Remington Arms Company had developed a 45-caliber pistol designed by John D. Pedersen of Jackson, Wyoming, and submitted it for U.S. Navy tests in 1917. The Remington pistol was favorably received by the Navy and contract negotiations were in progress. Then, on April 6, 1917, the United States entered the war.

The national interest lay in getting the greatest number of weapons possible into the hands of troops. Machinery to build the Colt pistol was already in operation. Instead of producing the Pedersen design, Remington was given a contract for 1911 pistols. The firm thus became one of the three manufacturers of 1911 pistols during World War I, the other manufacturers being Colt and Springfield Armory. There were 21,676 Remington 1911s made.

The Remington 45, the Pedersen design variously noted as the Model 1917 or Model 53, was never produced. The single existing specimen became resident in the Remington museum.



**Pedersen's excellent** pistol design, although not produced in 45-caliber, went on to become the popular Remington Model 51 pocket pistol.

Pedersen gained fame as the inventor of the World War I "Pedersen Device." He continued his interest in semi-automatic arms, and developed both rifles and pistols. In the post-war years, Remington used the Pedersen design in a successful pocket pistol, the Model 51, which was offered in 32 and 380 calibers. Although the two firms had been competitors since cap-and-ball days, Remington never again challenged Colt in the field of big-bore military sidearms.

U.S. entry into the war had dashed Remington's chances of a contract for their new design, but the growing need for arms raised the hopes of other inventors during the wartime period.

In the summer of 1917, a new 45 pistol, the Grant Hammond, was submitted. Hammond, of Hartford, Connecticut, had been working on automatic pistol designs since about 1913. Around 1915, he concentrated his efforts on a relatively simple recoil-operated design which is sometimes referred to as the "Liberty" pistol.

His design seemed to studiously avoid any characteristics of the Colt 1911, and used a long exposed barrel, a hollow receiver and a cylindrical bolt. In many respects, the pistol is similar to a late White-Merrill prototype, and it is possible Hammond may have known of that earlier pistol.

BY THE END OF THE 1907-1911 TEST TRIALS, THE 1911 COLT EMERGED AS THE MOST THOROUGHLY-TESTED, MOST RELIABLE AND MOST POWERFUL SEMI-AUTOMATIC PISTOL IN THE SERVICE OF ANY COUNTRY. BY 1918 IT HAD BEEN PROVEN IN BATTLE, WAS FAMILIAR TO MILLIONS AS A MILITARY ARM, AND WAS AVAILABLE COMMERCIALY. THERE WAS LITTLE INCENTIVE FOR ANYONE TO INTRODUCE A COMPETING BIG-BORE AUTOMATIC.

The most interesting feature of the Grant Hammond pistol is the automatic ejection of the magazine after the last round has been fired. As the last round is fed, the magazine follower sets a spring-powered ejector mechanism. Then, as the action recoils from firing the last shot, the magazine catch is mechanically released and the magazine is ejected from the butt.

Aside from that novel feature, Hammond's pistol could not offer any challenge to the Colt. It was not considered for service.

During the 1930s, Hammond became associated with High Standard Manufacturing Company. The experimental 45-caliber High Standard pistols of that period show some similarities to his 1917 pistol.

If the Colt 1911 could not be replaced, perhaps it could be improved? At least one inventor felt that if the 1911 could be simplified, it could be made faster and greater numbers could be produced.

Charles J. Jolidon, of Hartford, submitted a new design in 1917. Jolidon had had an uncertain relationship with Colt as an inventor and was familiar with the Colt pistols. His design was based on the 1911 and his trial specimen was made from a commercial 1911, but modified to use a rotating barrel.

Jolidon's design actually decreased the number of parts needed and simplified some of the machining. The specimen provided apparently performed satisfactorily in an Ordnance test, but there was never any real possibility of production. The time spent to retool for a new design would have more than offset any gains the simplification would have provided.

When the war ended, there was little reason to consider this design further. Jolidon worked on a series of blowback pocket pistols, none of which attained any success.

If there is any negative feature about the 1911, it is that it discouraged development of alternate concepts.

Automatic pistol development in the early stages at the turn of the century was closely related to the quest for military contracts. By the end of the 1907–1911 test trials, the 1911 Colt emerged as the most thoroughly-tested, most reliable and most powerful semi-automatic pistol in the service of any country.

By 1918 it had been proven in battle, was familiar to millions as a military arm, and was available commercially. There was little incentive for anyone to introduce a competing big-bore automatic.

Still, the Colt's early rivals had influences. The rejected pistols represented a variety of concepts. Many were suppressed by the Colt's superiority, but reappeared later in different forms.

The double-action feature, introduced by the 1907 Knoble, was used three decades later in some German pistols. Now, most new designs have double-action mechanisms.

The increased capacity of a detachable staggered magazine appeared with the 1907 Savage. After several decades, it reappeared with the 1935 Browning and now seems almost mandatory for any new centerfire automatic.

The push-button magazine release was introduced by the Luger, quickly adapted to the Colt, and has been almost universal for big-bore automatics. The first attempt at an ambidextrous release came with the Savage.

Different methods of loading and cocking by the shooting hand were introduced by the early White-Merrill pistols. Several European designs appeared between the wars, but were short lived. Just recently, new concepts of one-handed cocking have gained acceptance with the Heckler & Koch P9S and P7 pistols.

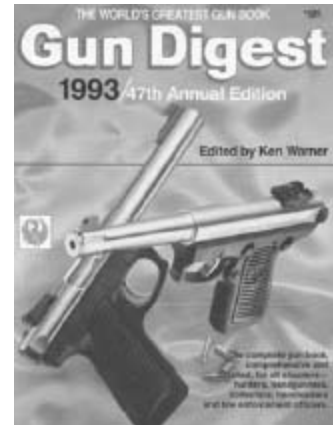
Gas-operated pistols — the Wildey and the Eagle — have recently appeared, recalling the Phillips pistol of Springfield Armory experiments.

With the emphasis on speed of reloading found in modern action shooting competition, we may even someday see reintroduced the magazine-ejecting feature of the 1917 Grant Hammond.

The Colt 1911 design lives on, and remains essentially unchanged. It is still considered by many to be the best pistol in the world. The also-rans are all gone, but some of their features influence modern design.

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1993



## Colt's 455 Model 1911: The First Variation

■ John Malloy

**T**HE COLT MODEL 1911 IS PROBABLY THE MOST WIDELY COPIED PISTOL EVER DESIGNED. OUTRIGHT COPIES AND NUMEROUS VARIATIONS HAVE BEEN MADE THROUGHOUT THE WORLD.

The traditional caliber has been the original 45 ACP, but variations have been made for a number of calibers down to 22 Long Rifle. Only once has the 1911 design been produced for a cartridge larger than 45. During World War I, Colt manufactured their pistol for the 455 Webley Automatic cartridge.

This self-loading pistol was adopted by Great Britain, giving the British military a substitute standard side-arm actually more reliable than the one it replaced. It was the first caliber variation of Colt's then-new automatic, and turned out to be — by a small margin — the largest caliber for which the 1911 was ever chambered.

With the benefit of hindsight, World War I was almost inevitable. The event that sparked it was the assassination of Archduke Ferdinand of Austria/Hungary by a Serbian. Within a month Austria, supported by Germany, declared war on Serbia. The alliances that had been developed to prevent war served only to drag in other countries once it began.

Czarist Russia, allied with Serbia and also with democratic France, began to mobilize. Germany issued ultimatums to both Russia and France, apparently attempting to frighten those countries into a neutral position. This strategy failed, and Germany planned to defeat France before the huge but poorly organized Russian army could be made ready for action. The German army swept into neutral Belgium to attack France.



**The 455-caliber** Colt Model 1911 can be distinguished by the “Calibre 455” slide marking and the “W” prefix to the serial number.

England was pledged to uphold Belgian neutrality and, at any rate, could not afford to have France’s channel ports fall under German domination. British forces went to war against Germany.

The British were poorly prepared for war. The British War Department began programs to increase armament production. One of the actions taken was to arrange for the manufacture of large quantities of small arms in the United States.

Among these contracts, semi-automatic pistols were ordered from Colt’s Patent Firearms Manufacturing Company of Hartford, Connecticut. These pistols were to be chambered for the British 455 Webley Automatic

cartridge, which had been adopted by the Royal Navy just a year or so before the outbreak of hostilities.

The United States was officially neutral at that time, but American sympathies were with Britain and France. Under the policy of neutrality, manufacturers could supply arms to any country. However, the British blockade, begun in November, 1914, prevented any great amount of material from going to the Central Powers.

Thus, the pistols were manufactured by Colt and delivered. They saw service in the hands of the Royal Navy and possibly other units. Following the defeat of Germany in November, 1918, they were recalled by the British War Department. Subsequently reissued to the Royal Air Force in the early 1920s, the 455s remained in British service until after World War II. They were then declared surplus and sold, primarily to American buyers.

The cartridge for which these pistols were chambered is known variously as the 455 Eley, 455 Webley & Scott or 455 Webley Automatic. It has a straight, semi-rimmed case, similar in general dimensions to that of the later 45 ACP. Its blunt, 224-grain bullet at 700 fps was considered an effective man-stopper.

The cartridge was developed much earlier for use in the Webley 1903 self-loading pistol, of which only a few experimental pieces were made. A year or so later, the Webley Model 1904, in caliber 455, did reach production and a small number were sold. This pistol was a real pioneer. If we do not consider the 45-caliber Mars and the 11.35mm Bergmann, which were essentially experimental arms, the Webley 1904 was the first commercial self-loading English pistol and the first large-caliber semi-automatic pistol ever produced anywhere.

The 1904 was beautifully made, but was large, heavy and expensive, and relatively few were sold. Nevertheless, it was one of the first serious attempts to compete with the big-bore stopping power of the revolver. Development continued, with other versions appearing in 1906 and 1909.

By 1912, Webley & Scott had developed what they considered a satisfactory 455 semi-automatic pistol. Opening of the breech was delayed by vertical displacement of the barrel through a system of inclined grooves on the barrel and receiver. The pistol was much lighter and more compact than the 1904. Under the designation "Pistol, Self-Loading, .455, Mark I," it was placed in service in 1913 as the sidearm of the Royal Navy. It was issued to all naval units and to the Royal Marines. The Army retained the



455 Webley revolver. The 1913 pistol, with its 5-inch barrel, weighed a reasonable 39 ounces, and was only 8½ inches long.



**From the left view**, markings were the same as contemporary 45-caliber pistols, prior to additional markings by the British.

However, the precision machining of the inclined tongue-and-groove locking system did not lend itself to reliable functioning under adverse conditions. Foreign material such as sand or dirt in the mechanism could put it out of commission. It was thus suitable for service at sea, but not well suited for landing parties. For land use, this questionable functioning made it inferior to the Webley service revolver and the recently adopted pistol of the United States, the 1911 Colt.

The Webley pistol had other drawbacks. The hammer location made cocking difficult. With the shooting hand, the straight angle and protruding grip safety gave the 1913 grip an awkward feel; it did not “point” naturally. The V-type recoil spring under the right grip was a potential source of trouble — if the brittle grip were broken, the spring could be lost, putting the pistol out of service. Nevertheless, under favorable conditions the pistol functioned well, was accurate, and handled a cartridge with good man-stopping characteristics.



**Parts of the 455** are the same as those for a 45, but there are a number of small dimensional differences.

By August, 1914, when England entered the war against Germany, fewer than four thousand of these pistols had been made. Webley factories could not increase production of both the Army revolver and the new Navy self-loader; they concentrated on revolver production.

A spur to this decision may have been the fact that, by this time, the new pistol's problem with reliability had begun to show up. During sustained firing, stoppages could be caused just by the powder residue from previous rounds.

The War Department supplemented the Naval pistol supply by obtaining Colt Model 1911 pistols, modified to take the 455 Webley Automatic cartridge. And the choice proved a good one. The Colt pistol was thoroughly reliable, well-suited to handle a large and powerful military cartridge.

Colt introduced the big-bore semi-automatic pistol to the United States in the form of their Model 1905. The cartridge introduced with this pistol was to become known as the 45 Automatic Colt Pistol (45 ACP). The 45 ACP is rimless, slightly shorter and slightly more powerful than the British 455 Webley Automatic round. Still, considering their independent development, the cartridges are surprisingly similar.

Colt's 1905 pistol utilized the Browning double-link locking system that had been introduced with its 38-caliber pistol of 1900. Designed by John M. Browning, locking and unlocking was accomplished by vertical displacement of the barrel. This movement was accomplished by parallel links at the front and rear of the barrel.

The 45-caliber 1905 pistol was the first large-caliber semi-automatic pistol to be commercially manufactured in the United States. With its 5-inch barrel, it was only 8 inches long and weighed about 33 ounces. Light, flat and compact, it was powerful and generally reliable, and stayed in production until replaced by the Model 1911.

The 1905 Colt and the 45 ACP cartridge formed the basis for the 1907 U.S. Army test trials.

These Army trials, which began in 1907 and ended in 1911, were a milestone in the development of the semiautomatic pistol. The end result was the most reliable large-caliber pistol in the world.

The program of tests had been drawn up to determine the type of side-arm best suited to military service. Both revolvers and automatics were subjected to the most extensive testing that had been done to that time. As a result, a 45-caliber revolver was adopted as an interim measure, but field trials continued with Colt and Savage automatics. During these trials, modifications and improvements were made. Both companies submitted redesigned versions for a final series of tests in 1911. John M. Browning made design changes on the new Colt and attended the final tests in person. When the grueling schedule was over, the new Colt had completed the tests, including a six-thousand-round endurance test, with out a malfunction. The Colt was adopted on March 29 as "Pistol, Caliber.45, Model 1911."

As adopted, the pistol had a 5-inch barrel and weighed about 38 ounces. The unlocking was still accomplished by downward movement of the barrel, but the barrel had only one link at the rear, with the muzzle supported by a barrel bushing. It had both thumb and grip safeties. For better pointing characteristics, the grip-to-bore angle had been changed from 84 degrees to 74 degrees. The 1911 was offered by Colt to the commercial market, replacing the 1905.



**Those Colt 455s** issued to the Royal Air Force were handstamped R.A.F. or RAF on the frame forward of the slide release. (Courtesy of Howard

Probably no other pistol had ever been so thoroughly tested or had such a deserved reputation for reliability. It was the obvious selection for manufacture in 455-caliber when the British began looking for supplementary supplies of pistols.

The similarity in dimensions between the 45 ACP and the 455 Webley Automatic cartridges allowed the Colt 1911 pistol to be readily modified to the British round. In general size and shape, the 455 cartridge resembles the 45 ACP. However, it is semi-rimmed, not rimless. The bullet is blunt and more flattened at the point than that of the 45. The case of the 455 is only slightly longer, but in overall length, the 455 cartridge is actually slightly shorter, due to its flatter bullet. Case body diameters are essentially the same.

In power, the two cartridges were similar. The 455's 224-grain bullet left the muzzle at about 750 feet per second, while the contemporary loading of the 45 used a 230-grain bullet with a muzzle velocity of about 800 feet per second.

The similarity in dimensions and power permitted relatively straightforward production of the 1911 pistol in 455-caliber.

External dimensions remained the same. Visually, the 455 pistol can be distinguished from the 45 only by markings. Legends are generally the

same as contemporary commercial 45s, with the exception of the caliber designation "CALIBRE.455" on the right slide and a "W" prefix to the serial number on the right frame. The magazine is marked "CAL.455 ELEY" on its base. Most specimens are found stamped with the broad arrow of the British War Department on the frame. Those issued to the Royal Air Force have "R.A.F." or "RAF" on the left side of the frame.

That portion of the barrel exposed in the ejection port may be unmarked, or may bear only a proofmark, or the ".455" caliber designation. One observed specimen, however, had this informative legend:

*.455" SL.923  
6 GRs NPP 10  
225"-BULLET*

Mechanically, the differences are subtle but are more numerous than might be imagined. Comparison of a 455 pistol with a World War I 45-caliber 1911 revealed these points:

The barrel is the obvious difference, as it must handle the British cartridge. The bore and groove diameters are, respectively, .451-inch and .458-inch, much larger than the corresponding .444-inch and .451-inch of the 45 barrel. The six-groove, left-twist rifling is of the style of the 45. To accommodate the longer case of the 455, the chamber is deeper with less forward shoulder. A groove in the hood allows the cartridge to headspace on the rim. The feed ramp is broader, to accommodate the blunt British bullet.

The barrel is about .005-inch larger in outside diameter, in keeping with its larger bore. Strangely enough, though, the diameter over the chamber is about .005-inch smaller than that of the 45. Another surprise is the width of the link-attachment lug on the underside of the barrel, which is .007-inch smaller than the lug of the 45 barrel. The slide is a close fit to this lug, and a 45 barrel will not go into the 455 slide. These subtle dimensional differences may have been planned by Colt to prevent a 45 barrel being installed into a 455 slide when both were assembled concurrently. Of course, 45 barrels were later installed in some surplus 455s; a small amount of file work would probably allow this.

Except for the narrow slot for the barrel lug, the slide exhibits little difference. Either assembled slide will go onto the other frame. The 455 extractor has a different arc because of the larger rim diameter.

The magazine is wider, due to the larger diameter of the cartridge rim. Thus, a larger magazine-well cut was required in the frame. A 45 magazine will fit loosely in the 455 frame, but a 455 magazine will not go into the 45 frame. The clearance between the frame opening and the widest part of measured magazines turned out to be .012-inch for both the 455 and the 45.

The exact number of 455-caliber Colt 1911 pistols made has not been completely resolved. Likewise, the numbering system used is in some doubt.


For some time, it was thought that all the Colt 455s were in a special serial number range with a "W" prefix, beginning with W100001 and running to about W110000. This indicated a total of about 10,000 pistols produced. The reason for the choice of the "W" prefix is not known. It has been suggested that it represents "Webley," for the developer of the original 455 cartridge. Correct or not, it is easy to remember. There was some speculation that the serial numbers duplicated numbers assigned to military 45 production. If so, this would place manufacture during late 1914 and 1915. Some authorities, perhaps noting the intriguing similarity of the military serial numbers, have stated that production took place "about 1915." An idea that the "W" number replaced corresponding numbers in Colt's commercial series production does not seem to be correct.

At any rate, information from British firearms historian Jim Stonley indicates that Colt 455 pistols were in use by British troops by the end of 1916.

Perhaps the most extensive research on the subject for the time was done by Donald F. Bady, author of *Colt Automatic Pistols* (1956, revised 1973). Bady reported that Colt records indicated a total production of 13,510. The first 1500 pistols were reportedly made on Colt commercial frames and numbered with in Colt's "C" series, C29001-C30500. (This would indicate production during the year 1916.) after this initial run, the "W" series pistols were shipped, in the range W100001 to about W110700. Thus, the total delivered during the war years would have been about 12,200. Another British contract was supposedly negotiated near the end of the war. If total production of 13,510 is correct, then approximately 1300 pistols may have been delivered from this later contract, probably after the war. Bady points out that a single pistol in the W124000 range may indicate that the numbers were not continuous with the earlier series, but may have continued after a gap.



**Forerunner** of the Model 1911, Colt's 1905 pistol introduced the 45 ACP cartridge to America.

TABLE 1: Comparison of 455 and 45 ACP cartridges				
Cartridge Features	455	45		
Case length	.923-inch	.898-inch		
Base diameter	.476-inch	.476-inch		
Rim diameter	.501-inch	.479-inch		
Cartridge length	1.225"	1.275"		
Muzzle velocity	750 fps	810 fps		
Bullet weight	224 grs.	230 grs.		

**Similarity of 45 ACP** (below) and 455 Self-Loading cartridges allowed ready modification of the Colt 1911 for the British round.

The number of postwar pistols may be greater. A collectors' publication recently reported this notation from a Colt shipping book for March/April 1919: "455 Autos 5000 shipped."

As recent collector interest in the 455s increased, other numbers — primarily lower numbers — have come to light. Pistols observed by the writer and reported by collectors include numbers in these series:

**TABLE 2:**  
Comparison of 455 and 45 Pistol Dimensions

**Barrel:**

Bore diameter	.458-inch	.4515-inch
Groove diameter	.451-inch	.444-inch
Outside diameter	.579-inch	.574-inch
Width over chamber	.683-inch	.688-inch
Width of lug	.355-inch	.362-inch

**Slide:**

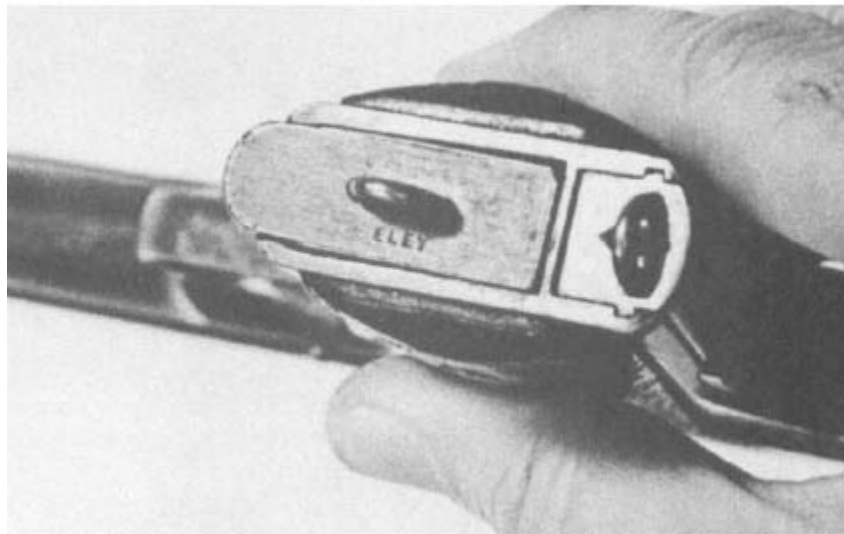
Inside, at chamber	.725-inch	.731-inch
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**Frame:**

Magazine well	.573-inch	.559-inch
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**Magazine:**

Max. width	.561-inch	.547-inch
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**Magazines** for the 1911 455 are stamped “CAL 455” above the lanyard loop and “ELEY” below. The magazine is wider than that of a 45.





**The Webley & Scott 455** Mark I pistol introduced the 455 Self-Loading cartridge into British service in 1913. (Courtesy of Robert C. Blackstone)

*W19000*

*W29000*

*W40000*

*W60000-W69000*

*W71000-W78000*

*W92000-W99000*

Suggestions to account for these lower numbers include early production for trial purposes and early purchase by the British for colonial service. A possibility exists in the later assignment of low numbers to fill gaps in previous series.

At any rate, the dates, the total number and the numbering system of the 1911 455s remain open to some speculation. The subject is of continuing interest to collectors, and information may yet be uncovered that will clear up the uncertainty that still surrounds the numbering of the 455 pistols.

Whatever the number, the pistols were ordered to replace the Navy's 1913 Webley and were, logically, used by the Royal Navy. There have been reports that some British and Canadian army units were issued these pistols.

While this is possible, it does not seem likely — primarily because of the limited production of the ammunition, which was distributed through naval supply channels. In addition, the Canadians were already using Colt pistols in 45-caliber, and preparations were under way to manufacture 45s under contract in Canada.

There does seem to be documented use of the 455s by the Royal Flying Corps prior to its 1918 reorganization into the Royal Air Force. After World War I, most of the Colt 455s were turned over to the Royal Air Force during the early 1920s, probably beginning in 1923. Most specimens thus have “R.A.F” or “RAF” stamped on the left side of the frame, forward of the slide stop. The stamping was done by hand on a local basis, and may be somewhat irregularly done. No RAF-stamped pistols seem to have been reported in publications with serial numbers under W100000. This may have led to the early idea that numbers began there.

The ammunition for these pistols essentially became obsolete between the wars. Most cartridges in collections are dated as World War I production. Stories have been told that RAF personnel were sometimes issued 45 ACP ammunition to be used in their 455s. The 455 ammunition was actually reintroduced in 1940, but the use of 45 cartridges in the 455 pistols is a real possibility. During the World War II years, the British military had large stores of 45 ACP ammunition acquired for their Thompsons.

The pistols remained in RAF service through the early part of World War II. Stonley reports that they were transferred to Air/Sea Rescue units about 1942. After the war, they were declared surplus, along with large quantities of other British military equipment.

In 1957, the FN Browning 9mm pistol was adopted, and surplus pistols were sold off. The first ad noted that offered the Colt 455s for retail sale was in the March, 1960, *American Rifleman*. The price was \$39.95. When the 455s arrived on these shores, 455 Automatic ammunition was not readily available. To spur sales, some local sellers priced them lower than 45 Automatics, and ads proclaimed that the 455s “will shoot 45 ACP.”

Shooting any cartridge other than the one for which the gun is chambered is not a practice to be generally recommended. The shooter of an old firearm is the custodian of a bit of history and should take care to preserve it. Still, no less an authority than the late Gen. Julian S. Hatcher reported extensive shooting of 45 ACP ammunition in a 455.

Before considering such a practice, it is wise to examine the relationship of the cartridge to the mechanical parts of the pistol.

The 455 round positions its semi-rim in a groove in the barrel hood to maintain proper headspace. Because the cartridge feeds from the magazine at an angle, there is a large clearance between the breech face and the extractor hook. In firing position, the extractor hook is well forward of the semi-rim, making no contact.

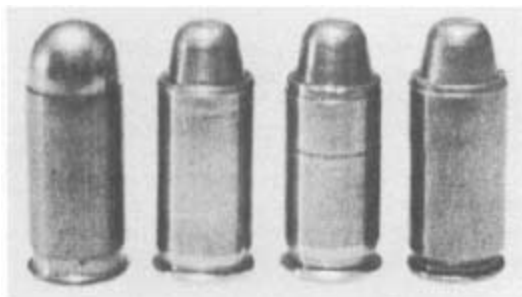
When a 45 ACP round is inserted into the 455 chamber, the rimless round slides forward of the hood groove. It would be expected that the shorter case would be held by the extractor against the firing-pin blow, with resulting strain on the hook. However, the case is only .025-inch shorter than that of the 455. In the pistol examined, the clearance between breech face and extractor hook is an even .100-inch, enough to let the 45 cartridge position on the case mouth in the normal manner. The firing pin can easily reach the primer and the case will, of course, move back against the breech face when the cartridge fires. These relationships can be seen from the underside of the assembled slide.

Still, it is something of a surprise to find that 45 ACP cartridges work so well. Both military loads and several varieties of cast-bullet handloads fed and functioned perfectly. Even blunt wadcutters such as Lyman's 452389 and 452309 gave no trouble. The broad feed ramp of the 455 barrel apparently aids the feeding of such bullets.

Accuracy is not particularly good. This is no surprise, considering that the .452-inch bullets are passing through a .458-inch bore, barely riding the tops of the lands. Yet, groups at twenty-five yards proved good enough for informal plinking or emergency short-range defense. "Tipping" of one or more bullets in each five-shot group was evident. Also, three or four shots might form a fairly close group, with the remainder wide. Translated to fifty yards, only three or four shots could be counted on to hit the paper of a conventional fifty-yard bullseye target.



**Visually** indistinguishable from a 45, the 455-caliber 1911 is seldom seen at firing ranges.



**The 455 cartridge** (left) can be approximated by a careful handloader using cases made from 45 Colt, 45

It is possible that erratic ignition may result from different positions — some forward, some rearward — of the cartridges in the chamber. This could add to the detrimental effect of the oversize bore on accuracy.

Accuracy should certainly be better using original 455 cartridges. However, such rounds are now collector's items. Most specimens observed

date back to World War I and might not even fire.

It is possible to make ammunition that is close to the original specifications. Modern 45 Colt and 45 Auto-Rim cases can be converted to the semi-rimmed configuration of the 455. In each case, the rim must be turned to .500-inch diameter and an extractor groove cut. Readily done on a lathe, it can also be accomplished in the ordinary home workshop. Inserting a 45-caliber jacketed bullet into a case will keep the walls from collapsing, and it can be chucked into a ½-inch drill. Carefully filing with a three-cornered file while turning the case will allow thinning the rim and cutting the groove.

The 45 Colt case will be too long and must be trimmed to .923-inch. The 45 Auto-Rim case will be slightly too short, but will headspace on the semi-rim.

Loading is easily accomplished with 45 ACP dies. Among common shell-holders, one made for the 45 Colt will be a bit loose but will work.

Another possibility is the use of 451 Detonics Magnum cases. These cases, obtained from Detonics Manufacturing Corporation of Bellevue, WA, are of the general dimensions of the 45 ACP, but are .94-inch long. They can be easily trimmed and used with out further modification. Although not semi-rimmed, the case will headspace on the mouth for firing, and will feed and extract reliably. A 45 ACP shell-holder can be used, and the cartridge will function through either 455 or 45 magazines.



**In order to appeal** to American shooters, ads for surplus 455s proclaimed that they could be used with 45 ACP ammunition.

It is difficult to obtain bullets of the proper diameter. I was fortunate to have access to a mould that cast semi-wadcutter bullets at .457-inch diameter. These bullets were lubricated by hand and used as cast for reloading the modified cases. Groups were noticeably improved. Hollow-

base bullets should work well, but a single test with Lyman's 450229 was disappointing.

However, with some experimentation, it should be possible for a careful hand loader to produce ammunition that will give excellent accuracy in the Colt 455. Being realistic, though, the exercise is probably academic.

The Colt 1911 455 is a collector's item of some historical interest. Most existing specimens will never be shot, and if they are in mint condition, they probably ought not to be. As with any other collectible firearm, wear and tear will detract from the value. For those owners who just want a few shots to try out a less-than-perfect specimen, 45 ACP cartridges will work well enough.

Considering that their history of production is still indefinite, it is even more difficult to speculate on how many Colt 455s remain in existence. Certainly an appreciable number must have been lost in service during the two World Wars.

Model 1911 455s are occasionally seen at gun shows and in collection displays. Should you get a chance to examine one, you will be looking at an interesting and seldom-recognized pistol. Produced because of wartime need, it has the distinction of being both the first caliber variation and the largest caliber variation of the Colt Model 1911 series.

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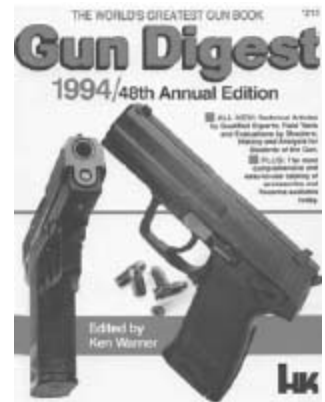
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1994



## Tricks & Treats For Your 45

Drop-ins that might make a difference ■ W.E. Sprague

I CAN THINK OF no other handgun that pistolsmiths have tuned, rebuilt, and modified to suit more goals and purposes than the M1911 45 ACP. The 45 automatic, as it's commonly called, reigns supreme in the realm of conventional bullseye shooting, dominates freestyle combat matches, is a potent contender in the sport of metallic silhouette shooting, and has only the 44 Magnum double-action revolver as a practical rival in bowling-pin competitions. And, of course, it has long since been accepted as the one to beat in the area of self-defense.

As a result of its widespread use, more modifications, adaptations and accessories have probably been devised for the M1911 than for any other handgun in history. Judging from the number of ads in the various shooting magazines, it's probably safe to say that more such modifications, adaptations and accessories exist for the 45 than for all other handguns combined. And though many of these require the services of a gunsmith, what are commonly called "add-on" or "drop-in" parts comprise the bulk of the trade and hold the greatest interest for the largest number of shooters. These are accessories of a type that can be installed at home with very little



trouble, and range from simple, redesigned replacement parts on up through such major components as frames, slides and barrels.

Where barrels are concerned, the 45 owner can choose from a generous menu of replacements, including extended barrels that can be ported, or fitted with compensators, to help reduce recoil and promote faster follow-up shots. But whether extended or standard length, perhaps the most popular are corrosion-resistant stainless steel barrels.

While offered by many suppliers, these were pioneered back in the early 1970s by Bar-Sto Precision Machine, and today Bar-Sto offers them for virtually every pistol on the market, including, of course, the 45. With prices starting at about \$135, Bar-Sto barrels are superbly finished, held to close dimensional tolerances, and include refinements such as radiused chamber mouths to help eliminate feeding problems. And, while their match-grade barrels must be professionally fitted, their standard barrels, for either the Government Model or Commander, can be had as drop-in units, providing the pistol is a genuine Colt. Barrels for clones and copies, Bar-Sto warns, may or may not require fitting; it depends on how faithful the copy is to the Colt.



**This otherwise** stock 45 has no less than ten drop-ins and add-ons from as many different suppliers.

A number of suppliers now offer stainless steel barrels that come with their own compensator units. Brownells, for example, widely known as a primary source for gunsmith tools and supplies, also offers a wide

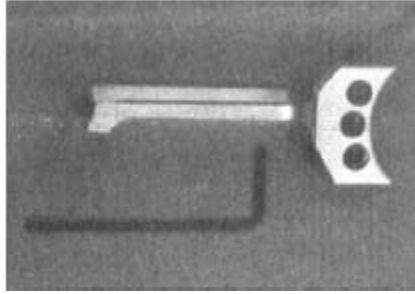
assortment of brand-name gun parts and accessories, including a dozen or so different “comp kits,” as these barrel/compensator units are commonly called. The installation of most of them requires the services of a gunsmith, but several can be had as true drop-in units for either competition or self-defense guns.

One such is the Quadra-Comp II, developed by Centaur Systems. Priced at about \$269.95, and available either directly from Centaur or through Brownells, it consists of a 5.5-inch bushingless tapered stainless barrel with a radiused chamber mouth; a dual-ported, dual-chambered compensator; a buffered, captive recoil spring with full-length recoil guide rod; and Centaur’s exclusive adjustable slide stop system.

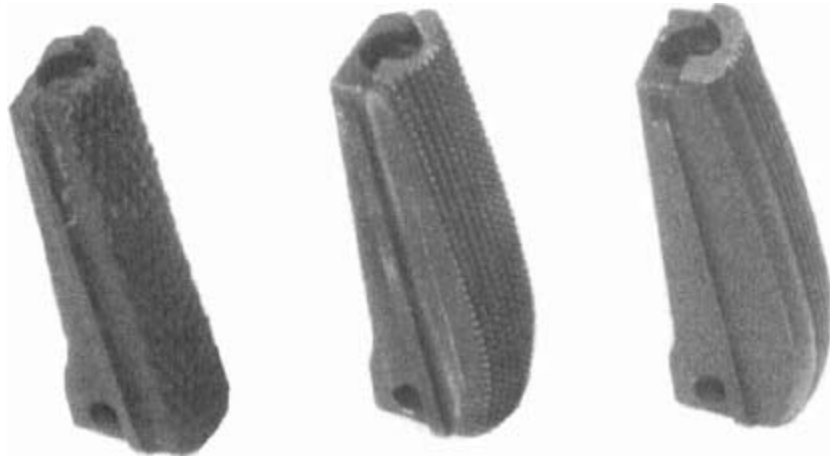
This latter piece is perhaps the most unusual feature of the Quadra-Comp II. The slide stop — which comes with a small roller, a specially dimensioned barrel link, and several shims of varying thickness — has a groove milled into the top of its link pin contact area. By “stacking” the proper selection of shims in the groove (initially, a matter of trial and error), then topping them with the roller, consistent lock-up, and so greater accuracy, is achieved by a camming action that forces the chamber end of the barrel up against the rear of the slide, while forcing the muzzle end down against the front in sort of a V-block fashion. Extra shims, supplied with the system, can be used to compensate for wear.



**Pioneered** by Bar-Sto, stainless steel barrels are now offered by countless suppliers. Except in genuine Colts, they may require some fitting.



**Lightweight** replacement triggers, such as this ultra-light from Wilson, are available from many different suppliers.



**Whichever** — straight, standard, checkered, not — mainspring housing, it's there today.

This same slide stop system is part of another drop-in offering from Centaur. Called the Quadra-Lok "T" and priced at \$179.95, it includes a stainless barrel (without a compensator) and a so-called universal bushing — which the latter, according to Centaur, fits any 45 slide, providing solid muzzle support and making the entire unit transferable to any M1911. Meant to enhance the accuracy of Tactical Class IPSC competition pistols, it will, of course, do the same for plain-vanilla 45s.

A far less costly means of improving the accuracy of a stock-barreled 45 is the Wilson-Dwyer Combat Group Gripper, a modified recoil spring guide from Wilson's Gun Shop. Retailing at around \$26.95 for either the Government Model or the Commander, it has a special barrel link with a cam on its leading edge that engages a leaf spring in the rear of the guide; thus, as the slide moves forward into battery, the link is forced up and forward by the spring, which in turn forces the barrel up into the locking lugs in the slide. The result is a more consistent lockup and greater accuracy

than might be obtained in a standard production gun. In fact, according to many experts, the Gripper can provide a greater increase in accuracy than can be achieved with any other drop-in or accessory.

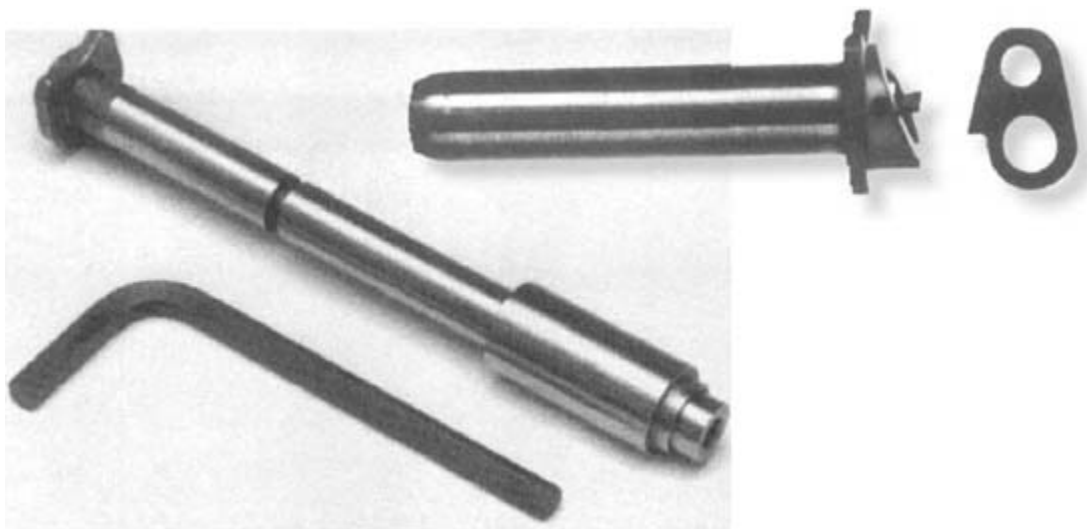
With the 45 that's fired a lot, it's a very good idea to protect it from the recurrent rearward impact of its slide, which, over time, can result in a cracked frame. So, for years now, several different suppliers have offered recoil buffers designed to do just that. Typical of these is the type made by Bar-Sto. Priced at \$30 for either the Government Model or Commander, and made from the same quality stainless that Bar-Sto uses in its barrels, it consists of a standard recoil spring guide fitted with a strong spring-loaded plunger that extends beyond the forward end of the guide to contact the slide during recoil. When compressed by the moving slide, the plunger slows the final part of its rearward travel, thus easing the blow when it strikes the usual arresting surface. In addition, as the slide moves forward into battery, the plunger spring accelerates its closing, often improving feeding by supplying more energy to carry the cartridge forward.



**Replacement grip** safeties are made with a broad extension to keep the web of the hand from being pinched by the hammer.



**Extended** magazine catches — these from Ed Brown Products — provide a more positive magazine “drop.”



**Full-length recoil guide rods** — this from Ed Brown Products — keep the recoil spring from kinking or binding.

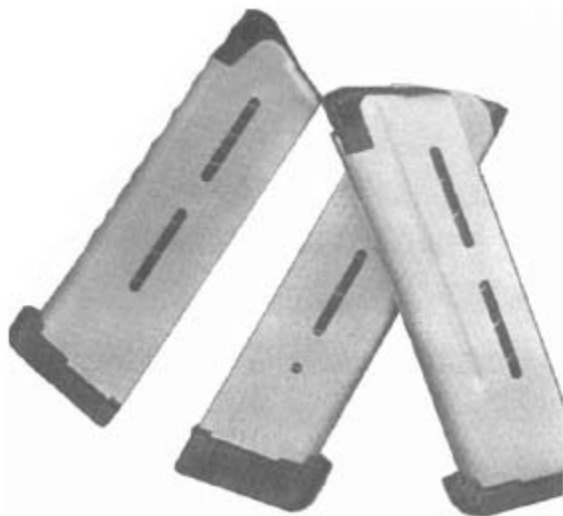
**Designed to promote** consistent lock-up, the Wilson-Dwyer Group Gripper seems to do more to improve the accuracy of a stock 45 than any other drop-in or accessory.

Yet another way to offset the effects of the recoiling slide is Wilson’s Combat Shok-Buff kit. With a price tag of only \$6.75, the basic kit consists of a heavy-duty recoil spring and two injection-moulded poly fiber buffers, one of which is meant to be sandwiched between the spring and the pistol’s recoil spring guide. Of the same shape and approximate thickness of the metal stop at the rear of the guide itself, the poly fiber buffer, good for 1000 rounds of hardball, absorbs the final impact of the rearward-moving slide. The poly fiber buffers, in packs of six, can be had without the heavy-duty spring for the same modest price, while at the top end of the price scale (\$36.95) is what might be called the deluxe version of the kit. This consists of six poly fiber buffers, an extra-power firing pin spring, a heavy-duty recoil spring, a “soft ball” target spring, and a full-length recoil guide rod and plug.

Full-length recoil guide rods, meant to take the place of the standard recoil spring guide, are in themselves popular drop-in items. These help to promote smoother functioning and longer recoil spring life by keeping the

recoil spring from kinking or binding against the slide, which can slow the movement of the slide, and thus the cycling rate, whenever the gun is fired. They come with their own specially designed spring plugs and, often as not, are two-piece affairs joined by fine precision threads for ease of assembly. Typical of these is the two-piece unit designed by Ed Brown, renowned gunsmith and head of Ed Brown Products. At a cost of about \$27.50, it's available for either the Government Model or Commander.

Some suppliers offer full-length recoil guide rods that incorporate additional features. Wilson's, for example, has a two-piece rod, priced at \$39.95, that includes their aforementioned Group Clipper as part of its design, thus affording the standard 45 with a factory barrel the advantages of a full-length rod plus the consistent lock-up and improved accuracy of the Group Gripper.



**Precision made** magazines, (below) such as these from Wilson, have special followers, extra-power springs and pads or bumpers to aid rapid magazine change.

Consistent lock-up and improved accuracy are also added features of a full-length guide designed by Accu-Systems and available either directly or from J.P. Enterprises. Called the Dual Action Buffer Spring System, this \$69.95 drop-in is really a two-piece rod with the pieces permanently joined in overlapping sections by a stout roll pin, and with a secondary spring contained within the breech-end section. This, in combination with its heavy-duty recoil spring and a head designed to match the curves and

angles of the barrel link and lug, applies upward tension on the barrel and keeps the slide from slamming against its stop.





(Left) **Pioneered** by Pachmayr, wrap-around grips are now a standard. These from Hogue offer a slightly softer rubber, finger grips and the “pebble” finish.

(Left) **King’s Speed Grip** has ambidextrous palm swells, built-in magazine well, dual thumb guards and full length non-slip checkering.

(Left) **The Safariland 1911 Auto Combat Grip** forms a “lip” or extension that forces the shooter’s hand up against the trigger guard for increased stability and control.



(Right) **For those who prefer** them, Hogue offers replacement grips in a wide variety of exotic woods.



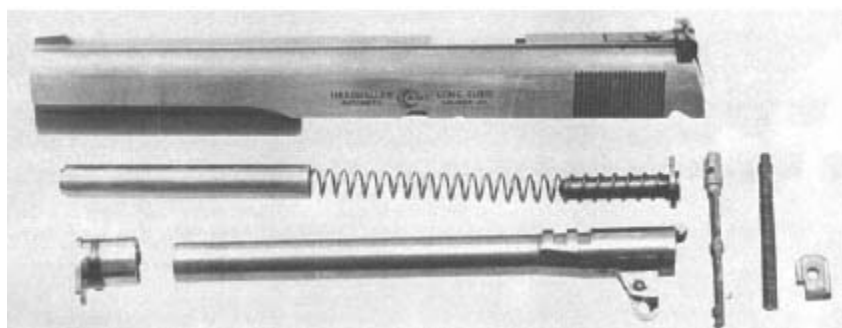
**Wilson's grip adaptor** provides an inexpensive alternative to having the frontstrap checkered or stippled for a more solid hold.



**Because of its adjustable** slide stop system, the Quadra-Comp II from Centaur Systems is one of the few drop-in comp kits that requires no gunsmith fitting whatsoever. (Bilal photo)



**Richard Heinie's comp kit** (below) is a true drop-in for 99 percent of all Colts. Clones and copies, though, may require some fitting.



**The Long Slide Kit** from AMT, which includes a 7-inch stainless barrel and slide, replaces the entire upper assembly of a stock 45, providing a greater sight radius and thus improved accuracy.

Yet another “added-feature” full-length guide rod is one designed by master gunsmith Richard Heinie and available from his company, Heinie Specialty Products. Priced at \$65, it’s made from heavy tungsten steel and, replacing the .5-ounce factory spring guide, adds 3.5 ounces of weight to the front of the pistol, thus reducing felt recoil and muzzle flip.

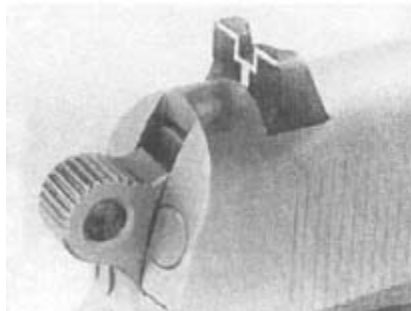
Two other popular items are redesigned replacements for the standard grip safety and mainspring housing. The former, another drop-in offered by

virtually everyone in the trade, is made with a broad — or sometimes upswept — extension at its upper rear that sets back over the web of the hand to keep it from being pinched between the hammer and the tang of the standard safety. Often called a “beavertail” grip safety, it also helps position the gun more firmly in the hand.

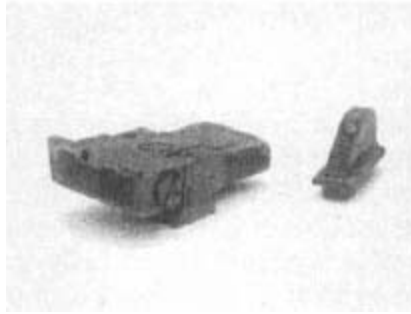
Although many of the upswept versions require fitting and frame contouring by a competent gunsmith, the other type can usually be owner-installed quite easily, especially those made by King’s Gunworks. Over the years, I’ve installed no less than a dozen of King’s #203 grip safeties (\$33 for the Colt Series 70, \$35.50 for the Series 80) without any fitting whatsoever. At comparable prices, King’s also offers a model to fit the Springfield frame, and one that’s notched to allow the use of a Commander hammer with the Colt Government Model pistol.

Two reasons for replacing the factory mainspring housing would be that the 45 owner either wants one that’s checkered or one that’s flat (and checkered), rather than arched, because it affords a more comfortable hold. If the pistol is a genuine Colt — clones and copies might need a bit of fitting — several suppliers can oblige. Wilson, for one, has deeply checkered steel housings, either flat or arched, at a cost of \$36.95 in blue and \$39.95 in stainless. Pachmayr, for another, offers drop-in housings covered in checkered rubber at either \$18.95 or \$19.95, depending on the style.

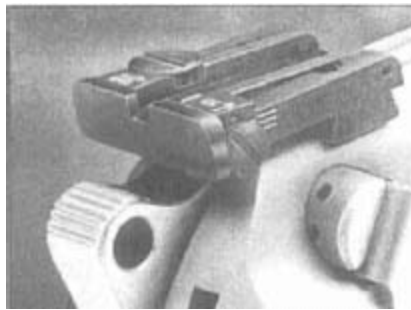
Lightweight replacement triggers, with either plastic or aluminum finger pieces — and most with adjustable screw-type trigger stops — are available from several different sources. Pachmayr has one with a self-lubricating nylon finger piece at a cost of \$14.95, while Wilson offers one at \$17.95 with an aluminum finger piece that’s further lightened by a trio of holes drilled through it.



**Characterized** by a familiar white “Y” rear-sight outline, Millet sights offer a wide variety of popular replacements for the M1911.



**Low light sights**, like Millet’s Tritium Night Sight, utilize a minuscule amount of a radioactive isotope, allowing them to be seen even in total darkness.



**For the pistol owner** who uses different bullet weights and loads, an adjustable rear sight, like this one from Pachmayr, is a highly desirable replacement.



**King's** “arsenal-type” front-sight staking tool can be used by almost anyone with the ability to handle a file and mallet, and with it, a profusion of both fixed and adjustable sights becomes available to the 45 owner.



**Lighter and less** expensive than other red dot sights, the “epc” is chemically bonded to the gun, thus doing away with the need for a separate mount.

Replacement magazines of plain steel in both standard and increased capacity are available from several vendors. Generally, though, anything

over a ten-round length tends to make the gun cumbersome. Far more popular are standard length and eight-round magazines in stainless steel. Precision-made, they usually incorporate such features as specially designed followers meant to eliminate feeding failures, extra-power springs to resist “spring set,” and so-called combat pads or bumpers designed to facilitate a rapid change of magazines, while guarding against damage should the unit be dropped.

Worthy of special mention is the magazine made by Eagle International. Priced at \$31.50, and available in either natural or blackened stainless steel, it holds nine rounds, instead of seven, without increasing its overall length beyond that of a seven- or even eight-round magazine equipped with a combat pad. Its secret seems to be a unique constant force spring that takes up very little space inside the body, thus allowing it to hold two more rounds than a standard type with its conventional spring compressed at the bottom. In any case, with one round in the chamber, the 45 equipped with an Eagle mag has more than a 42 percent increase in immediate firepower.

Another popular item offered by several suppliers is the extended magazine catch. Designed to be more accessible to the shooter’s thumb, it generally consists of a standard catch to which extra length is added by way of a “button” attached to its protruding end with a screw that sets flush to the surface of the button after installation. Typical examples are those available from Ed Brown Products at a cost of \$29.95 for either a blued or stainless steel version, or \$31.95 for a hard chromed stainless model.



**Aimpoint**, pioneer of the electro-optical red dot, offers a wide variety of laser sights.



**By projecting a red dot** on the target, laser sights, like Alpec Team's Beam Shot, allow the shooter to concentrate on what he intends to shoot instead of his sight alignment.

The item most often replaced by the 45 owner would seem to be the pistol's factory grips. Accordingly, there seems to be an almost unlimited assortment of available replacements in exotic woods, rubber and various plastics, making a proper choice a matter of knowing exactly what the owner wants from his replacements.

For the shooter who wants a well-balanced blend of beauty and function, a fine line of quasi-custom grips is offered by David Wayland, longtime master craftsman and grip designer, whose business name is Wayland Precision Wood Products. Called Classic+ Grips, they follow the factory shape, but are made a bit fuller, incorporating subtle changes that improve the hand-to-gun fit. A basic set in tropical wood with smooth finish and a German silver oval inlay (suitable for engraving) set in the right-hand panel costs \$34.95, with hand-cut checkering, if desired, adding another \$24 to \$70, depending on the grade of checkering desired (deluxe, presentation, extra fine, etc.) and the number of lines per inch.





**The 45** is perhaps the first handgun in history for which independent makers have produced major components such as this frame from Essex Arms.

Similar replacements are available from Hogue Grips, a firm best known for its unique revolver Monogrip. The Hogue grips, though, more closely replicate the 45's original style, with the exception of one type that comes with finger grooves designed to enclose the pistol's front strap. Available in Pau Ferro, Goncalo Alves and comparable woods, they range in price from \$34.95 to \$42.95, depending on the style and kind of wood.

For those more interested in function than appearance, the choice is often a set of so-called wrap-arounds. Made of a tough synthetic rubber, or in some cases, a proprietary elastomer, they consist of a single piece, the center section or web of which completely encloses the smooth front strap of the grip frame, providing a positive, nonskid hold. The only problem confronting a would-be buyer would seem to be a confusing array of choices.

Pachmayr, for example, who introduced the concept back in 1974, now offers three different styles for the Government Model or Commander, each with slightly different features, and each at a cost of \$30.50. Like all Pachmayr grips, they're made of tough neoprene rubber that affords positive contact with the shooter's hand and fingers. Further augmenting this contact, they are checkered to about 20 lines per inch.

Comparable wrap-around grips are offered by other suppliers, including Hogue. The Hogue grips, though, priced at \$19.95, seem to be slightly larger in girth and are made from a slightly softer rubber. They're also made with finger grooves that force the hand up against the trigger guard for better recoil control. Instead of checkering, they have Hogue's customary "pebbled" finish.

A unique offering from Michaels of Oregon is a three-piece grip for the Colt Government Model and its various clones and siblings. It uses a separate center section or web, incorporating finger grooves, that locks into the cutouts of the grip frame by way of thin, integral "slabs" that approximate the size and shape of the cutouts, after which it's secured by the grip panels. At a cost of \$17.95 a set, they're precision-moulded reproductions of hand-carved hardwood masters and are made of a specially formulated elastomer that's both lighter in weight and firmer than rubber.

If wrap-around grips have any particular failing, it's that many 45 owners find their ubiquitous black to be aesthetically lacking. In an effort to offset this, Radical Concepts (formerly R. J. Renner Co.) offers one-piece wrap-around grips in color. Aptly named "Radical Grips," and priced at \$19.95 each, they're made of a proprietary elastomer that's virtually immune to chemical attack from oils and solvents. They also offer their wraparounds with the choice of a center section featuring a "grid" of fourteen evenly spaced 5mm holes, into which the shooter's fingers are firmly compressed each time the gun is gripped, virtually locking the hand in place.

But, "grid grip" or plain, the most obvious feature is, of course, color. Besides the usual black, they come in a smoky gray that complements stainless steel, as well as in a veritable rainbow of other colors: royal blue, coral, lime and yellow. One might wonder about the virtue of colors, aside from aesthetics, that is, but there are some practical aspects. For example, some owners maintain a "wardrobe" of grips, changing them whenever they grow a bit bored with those on their guns. And some few others literally color-code their otherwise identical pistols according to caliber, permitting a quick selection.

There is yet another practical aspect that, hopefully, none of us will ever have to discover the hard way. According to at least one legal expert, if ever the day should come that you find yourself in court, defending yourself for having used deadly force to stop a malicious intruder in your home, a set of colored grips could work to your advantage. It's not uncommon these days

for a prosecutor (or a plaintiffs attorney in a civil case) to try to convince a jury that defendants in such cases are monsters of some kind who keep a gun on hand, just waiting for a chance to do somebody in. Jurors, though, might find it hard to believe a “monster” would decorate his gun with a set of coral pink grips.



**Para-Ordnance** still offers its original frame assembly kit, which allows the 45 owner to convert his own pistol to high-capacity.

While that may sound a bit farfetched to some of us, it certainly reflects one of the major purposes behind Radical’s introduction of colored grips. As a company spokesman put it, “we want to make handguns look more like the sport equipment they are, and not the tools of crime that the media like to paint them.”

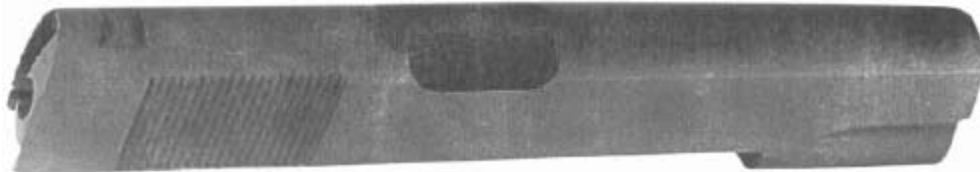
Though not exactly wrap-arounds as such, there are two replacement grips for the 45 that accomplish much the same thing, and in one case, even more. One is King’s Speed Grip, and the other is Safariland’s 1911 Auto Combat Grip.

Flared slightly forward at the bottom, the Safariland grip wraps around the lower end of the front strap, forming a lip or extension that forces the shooter’s hand up against the trigger guard for increased stability and control. Made of a proprietary plastic, it’s embossed with checkered panels

and comes in black for \$19.55, or in brown simulated wood burl for only a dollar more.

Costing \$49.95, the King's Speed Grip, made of a hard, black polymer, follows the same basic design, but incorporates several additional features, such as ambidextrous palm swells, a built-in magazine well, dual thumb guards, and full-length non-slip checkering. The swells provide a more hand-filling hold for either a right- or left-handed shooter, while for the shooter who prefers a high thumb hold, the twin guards prevent ejection failures caused by friction between the thumb and the rearward-moving slide.

For shooters who favor factory stocks, or those of similar design, the smooth front strap of the 45 is often a source of irritation, promoting, as it does, a slippery hold, especially in hot and humid climates or if the hand is wet or oily. And while having the frontstrap checkered seems an obvious cure, it's also quite expensive. A much less costly cure, priced at \$14.95, is offered by Wilson's Gun Shop in the form of a special adapter. Available for either blued or stainless steel guns, it consists of a thin steel overlay, stamped with a checkered design, that completely encloses the frontstrap, and is held in place by the factory-design stocks.



**Replacement slides** are also among the major components produced by independent makers such as Essex Arms.



**Thought by some** to be the Rolls Royce of frame kits, the Modular 1911 from Chip McCormick combines space-age polymer parts with steel parts.

Replacing the 45's original sights is a virtual "must" where many owners are concerned, but owing to the way in which the front sight is attached, installation generally calls for a gunsmith's services. King's, however, offers an "arsenal-type" front sight staking tool priced at \$19.95. Of simple design, it can be used by almost anyone with a modicum of mechanical aptitude and the ability to handle a file and mallet; with its use, a profusion of both fixed and adjustable sights becomes available to the 45 owner.

King's offers several front/rear combinations, including a "target" version of the popular three-dot system priced at \$39, and a "combat" version costing \$32. Other outstanding sights can be had from other suppliers too numerous to individualize here; suffice it to say that the Brownells catalog devotes a good five pages to 45 replacement sights, all at comparable prices.

Popularized by competition shooters, the electro-optical "red dot" sight is yet another item finding favor with more and more non-competition shooters. It's fairly expensive, though, with aimpoint, who pioneered the concept, charging \$229.95 for its least expensive sight, the Model 3000, plus the cost of a suitable mount which adds another \$59.95. A far less pricey red dot is the epc (all lower case letters, please) from Electro Prismatic Collimators at a cost of \$149.50, with further savings affected by the fact that it doesn't require a mount. Considerably smaller and lighter than competitive red dot sights, it uses a unique chemical bonding system

that attaches the sight directly to the slide — which means it can also be used with virtually any firearm.

For those who decide it's worth the price, the complex mating of optics and electronics that goes into this type of sight all but guarantees a hit by generating the illusion of a bright red dot on the target, obviating the need for the usual sight alignment, proper focusing of the eye on the front sight, and so forth. The same is true of laser sights, which have the added advantage of allowing the shooter to fix on the target instead of the gun or its sight, since that's where it actually puts its dot. Laser sights, though, are also fairly expensive. The Beam Shot from Alpec Team, for example, retails for \$159, but the price includes a mount.

The M1911 is one of the few guns in history for which independent makers have produced major components. Essex Arms, for instance, offers both frames and slides, with a matte blue frame costing \$125.80 and a matching slide \$130.66. Still other suppliers offer major components, among them AMT (Arcadia Machine & Tool) which offers its Long Slide Kit (an entire upper assembly that includes a 7-inch stainless barrel and slide) for \$259.99, or its Hardballer Kit (a comparable upper assembly, but in standard length) for \$245.95.

Yet other suppliers offer the 45 owner a way to upgrade his seven-rounder to a high-capacity pistol holding thirteen rounds or more. Para-Ordnance, for example, sells a selection of three so-called frame assembly kits, two in steel and one in alloy. Each consists of a high-capacity “wide body” frame and compatible magazine, along with a recoil spring and guide, and a redesigned trigger and magazine release. Priced at \$269, the alloy kit accommodates thirteen rounds, as does one of the steel kits, priced at \$375. The remaining steel kit, priced at \$385, holds fifteen rounds.

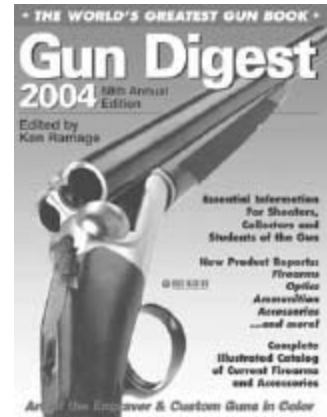
Another fifteen-rounder, considered by some to be the Rolls Royce of frame kits, is one designed and manufactured by Tripp Research and available from Chip McCormick. Priced at \$665 (which price, at least in part, might account for the Rolls Royce comparison), it's called the Modular 1911 Frame Kit — so named because it is, in effect, a two-piece affair. It has a fully checkered grip and squared-off trigger guard made from a space-age polymer, and a slide-rail upper portion machined from a solid steel billet. The two materials, though, are bonded in such a way as to produce, in effect, a one-piece frame that's 42 percent lighter than even a standard 45 frame.

With such components available, it's possible for a 45 buff to assemble his own custom pistol, mixing and matching a choice of frames and slides along with the other parts mentioned here, producing a wide array of special features never made by Colt, nor imagined by John Browning.

Still other modified parts and accessories are available for the 45, including a good many more from the suppliers and manufacturers mentioned here, but space prohibits listing them all. A good idea is to send for their catalogs, or even better, the Brownells catalog (\$3.75 to non-dealers), since it seems to give the best overview of what's available from almost everyone in the trade. Where any accessory is concerned, a closing word of caution is in order: Over the years, I've learned the wisdom of avoiding any accessory that requires a major alteration of the gun; should the accessory ever break, replacing it with a Colt or a GI part could be your only recourse, but one that's unavailable if the gun is substantially altered. With that said, there are endless tricks and treats awaiting your 45.

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2004



## Too Many 45s?

■ Lee Arten

**T**HE PISTOL THAT started it all is an old Colt 45ACP with a World War I-vintage trigger, a flat main-spring housing and 'MODEL Of 1911' stamped on the slide. It sports a World War II-style hammer, and a thinning coat of gray Parkerizing.

I was just out of high school in 1969 when I talked my father into buying the pistol for \$75, and later transferring it to me. The man who sold it to Dad had intended to make a target pistol out of the 45, so a set of Micro sights, a target bushing, three magazines and a Dwyer 'Group Gripper' came in the original deal. It wasn't long before I had a local gunsmith add the target sights and bushing to the pistol. I installed the 'Group Gripper' myself — it has been in the gun and working for 31 years.

I added black rubber Pachmayr grips in the 1980s but didn't have anything else done to the pistol until I started to shoot bullseye matches later that decade. The first few matches were shot indoors with a Colt 22 conversion kit installed on the gun. It took about two matches for me to decide the military trigger wasn't going to suffice. Shooting two-handed, I was able to manage the heavy trigger. One-handed match shooting was



something else again, so I took the 45 to another gunsmith and had the trigger smoothed, and lightened by a pound or so.

Two or three years later, I was at the 1988 Second Chance Combat Shoot. I competed that match for the next 10 years and used the old 45 in about half of those matches. Even after I got a new custom 45, it came along as a backup gun.

At the 1988 match, the old 45 developed a dislike for the Blazer ammunition I brought. I remember thinking factory ammo would be a better bet than reloads but I shot poorly and cut myself on the rear sight clearing stoppages. As soon as I stopped the bleeding, I took the 45 down to the Cylinder & Slide trailer near the end of Commercial Row and gave it to gunsmith Bill Laugh-ridge from Fremont, Nebraska. He did a throating job on it and I fired my second event with reloads and without any jams. I had Bo-Mars put on the gun when the sharp-edged Micro sights fell apart several years later.



**The 5 shots below** the pistol in the nine-and ten-ring on this silhouette target were fired from 50 feet. The 5 in the five-and six-ring above the

pistol were fired more quickly from seven yards. The author was happy with the performance of the Officer's ACP and his hardball-equivalent loads. Isaac Arten photo



**The author's 45-caliber** handguns include (from the top) the Model of 1911, a Model 1927, and Officer's ACP, an Ashabell Cook underhammer blackpowder 45, a Model 1991AI Commander, the pin gun, a hybrid ported pistol with a Caspian slide and a Para Ordnance frame, and the target gun, a utilitarian bullseye pistol. These are just a good start, according to the author.



(Above) **The pin gun** with a target shot from 50 feet. The 'eight' was the author's fault, not that of the gun. Isaac Arten photo



(Left) **The pin gun** has a Para Ordnance frame, and a hybrid slide and barrel from Caspian. The barrel has five ports that make compensated performance possible in a standard-size gun. The system controls recoil of heavy pin loads well, helping to cut time between shots in steel plate or bowling pin matches.

I can't begin to guess how many thousands of rounds have gone through the old 45. At first, I didn't shoot it much since ammo was expensive and I didn't reload. In the early 1980s, after I got dies and a cheap box of bulk bullets, my 45 ACP consumption rose steadily. Practicing to shoot pin matches, I used to shoot up a hundred rounds one night, reload them the next and shoot them up again the night after. Later, I went on reloading

binges every two or three months. By then, I had more brass and was making ammo for two 45s.

My standard 45 ACP load has become 5.8 grains of Unique and a 230-grain lead round-nose bullet, or the same amount of powder with a 230-grain full metal jacket slug. The load is accurate enough for pin shooting, International Defensive Pistol Association (IDPA) matches, steel matches, and plinking. I even used it in one 2700 match when I ran out of time to load target ammo. Accuracy was no problem but the brass bounced a long way down the range after being ejected from the Pin Gun. During breaks in the centerfire and 45 stages, other shooters would come up to me and ask, “What are you using in that thing ?”



**Ammunition on hand** for the author’s 45s includes Winchester hardball, and Federal, Black Hills and CorBon hollow points. The factory loads are backed up by lots of reloads, usually made with FMJs or LRN bullets.

I’ve also used 4.0 grains of Bulls-eye for target loads with 200-grain lead semi-wad cutters. Other loads I’ve tried have either been less accurate than my Unique or Bullseye loads; or they haven’t functioned as well in my guns.

My second 45ACP handgun was a revolver. I’d come across a copy of Shotgun News and one of the display ads showed a Smith & Wesson 1917. In 1989 or ‘90, the Brazilians sold as surplus — at good prices — the revolvers they acquired from S&W in 1937 or ‘38. I’d always been fascinated by the S&W and Colt 1917 revolvers and so had a local dealer order me one of the returned Smiths from Southern Ohio Gun. I bought 100 full-moon clips from Ranch Products, and was ready to go.



**The Target 45** with an 'X,' two tens, and a nine showing. The author hadn't shot bullseye for more than a year, but at least the gun remembered how.



**The long and the short** of the author's 45s. At the top is the custom Para/Caspian P-14 with the larger grip, which accepts high-capacity

magazines. Below is the Officer's ACP. It is about as accurate as the larger gun, but easier to conceal because it is smaller and thinner.

The old revolver had a rough bore, skinny, oily stocks and a lot of holster and storage wear. It looked a little better after I wiped it down and cleaned the bore with FP10 and a lot of patches, and it shot much better than it looked. I put the old factory grips in a box and slipped rubber Pachmayr grips onto the gun. A few months later I added an Evans 'Wonder sight' to the frame that allowed me to adjust the point of impact without having to resort to a file.

Later, after winning a certificate for some gun work at Second Chance, I had Cylinder & Slide check over and refinish the 1917. I had to send the gun to them for the work, instead of getting it done at the match. The old '17 came back in a few weeks with a report that said the cylinder gap was slightly enlarged, but the revolver had passed the hammer push-off test. The 1917 also sported a new coat of black Parkerizing, looked handsomer than it had for many years — and shot just as well, too.

The old N-frame has served as a house gun, a backup gun in revolver events at pin matches, in PPC-type matches at local clubs and for small game hunting. I like to take it out at the end of small game season (if the snow has melted enough) and sneak around looking for cottontails or snowshoes. I once thought of cutting it down, but decided I liked it just as it was. Chronographing loads fired from the old S&W showed that, with the same loads, it produced higher velocities than my old 1911. It has almost a 1/2-inch longer barrel than my Government Model 45, but I had assumed the cylinder gap would drop velocities below those from an autopistol.

Although I did some conventional target shooting with rifles and pistols then, the biggest thing on my shooting calendar in the early 1990s was bowling pin shooting. Richard Davis, head of the Second Chance Body Armor Company, ran a very interesting and eclectic match. There were custom revolvers and autopistols made to suit almost any taste, and some of the people with the tricked-out guns could shoot them well, too. Carbines, shotguns and submachine guns were also in evidence and you could even try 30-and 50-caliber machineguns, and pay by the belt. My nearly stock 1911 sometimes looked like a Model A Ford at a modern drag race.

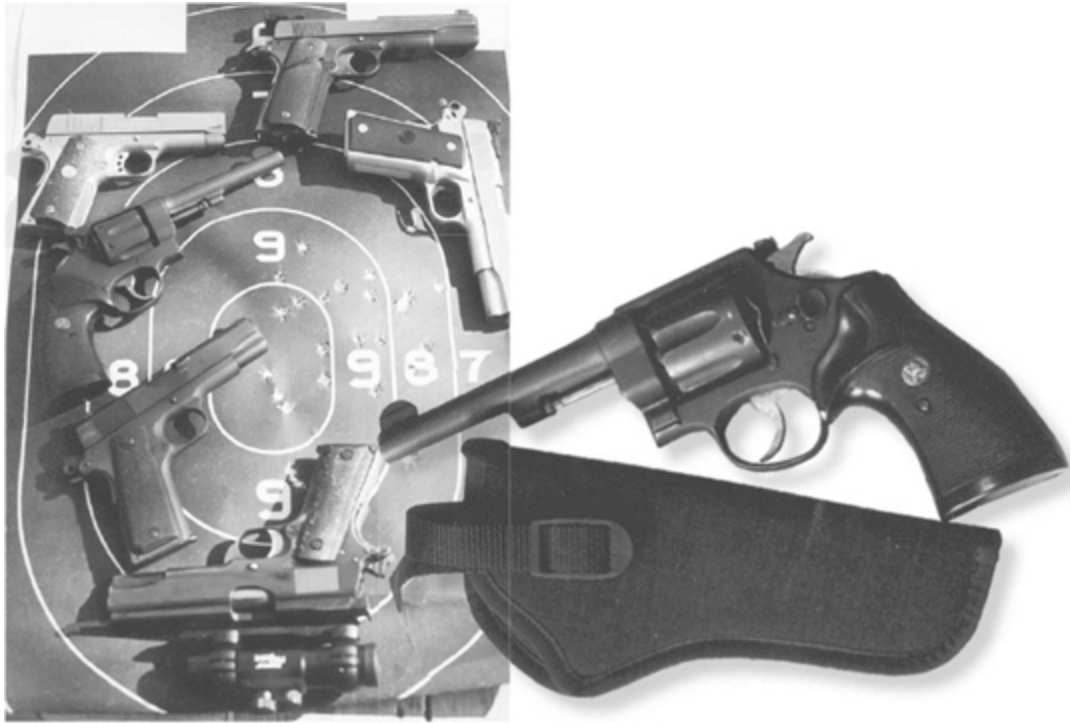


**Dillon's LTD holster** nicely fits the author's carry 45s, the Officer's ACP and the 1991 Commander. It has carried both in matches. The Officer's ACP has ridden in it in the woods while the author was trout fishing.

After meeting Charles Wooley and shooting his hybrid 45 on the practice range at Second Chance, I went into full plot-and-scheme mode. By 1992 I had a Para-Ordnance P-14 frame mated to a hybrid-ported Caspian slide. It was a slick setup, with a great trigger, and it would stack round-nose 230-grain bullets one on top of the other at eight yards, the distance from the firing line to the bowling pin tables. After I got some loading problems worked out, I posted my best pin shooting times ever with that gun. Trivia was still my best event, but the Para definitely helped me improve in Five Pin.

I shot the Para in two steel matches at my club during the last two years, and managed to win both of them. The matches went by very quickly, but what stayed with me afterward was how the Para seemed to float smoothly from one 12-inch plate to another — and then go off at just the right time. After shooting pins, the plates seemed large and easy to hit. I knocked 12 plates off their steel racks in about 13 seconds. That isn't really fast, but it was fast enough to win that day.





(Left) **The six 45 ACP** handguns in the author's collection surround a 30-round group shot by the author's son Isaac. Isaac is left-handed and tends to shoot to the right with revolvers and the smaller semi-automatics. One shot was off the paper, but some groups from individual handguns weren't too bad.

(Below) **Uncle Mike's Sidekick #3** holster fits the Model 1917 quite well. It has carried the old revolver on rabbit hunts, in PPC-type matches, and in revolver stages at bowling pin matches.

The Para is heavy, too high-tech for IDPA matches, and I haven't hunted with it. It was fired in a few 2700 matches some years ago. In one, I posted the only 98 rapid-fire target I've managed to shoot in centerfire competition so far. (The gun would have let me clean the target too, but I pulled one shot down into the eight ring.) I haven't been able to make any bowling pin matches for the past two years, so I've been considering shooting the Para in the 'Centerfire' stage of bullseye again.

The Para/Casp is my most customized gun, but the next 45 I acquired is a close second. A friend told me that The Northwoods Trading Post in Hancock, Michigan had a target 45 for sale. Northwoods, run by a former cop, is one of my favorite gun stores so I was only too glad to stop by. When I got nose-to-nose with the handgun case, however, the target gun I

thought I was looking for immediately took a back seat to a carry 45 that was also in the case.

The gun was a stainless Officer's ACP. (Please don't call it an Officer's Model, which would make it a target 38 revolver.) The ACP had a checkered front strap, a trigger job and a custom trigger, probably a Videki. It also had the best standard sights I'd ever seen on a 45. They were higher than the minuscule sights on my original 45, and sported white dots front and rear. I could have lived without the dots, but the high-visibility sights lined up quickly and impressed me.

I bought the Officer's ACP in the fall of 1994. The following June, in the Second Chance Trivia competition, I managed to come up with another certificate for gunsmithing. Using that, I had the factory bushing exchanged for one with less of a history of breaking and flying down-range at inopportune moments.

I intended to use the Officer's ACP as a concealed-carry piece, but found the custom trigger a bit light. I haven't had the trigger redone yet, and may not. In the meantime, I've used the little pistol in practical pistol matches, carried it in the open while fishing, and shot it at gongs and silhouette targets just for fun. It seems to be almost as accurate as the Para, and it is a favorite.45.

In 1996, for my 45th birthday, my wife gave me a target 45, complete with an old Aimpoint scope, an Elliason rear sight and rib, and extended front sight. The pistol appeared to have been made by a military armorer and is utilitarian, rather than decorative. The front-strap was harshly stippled, and the frame and slide showed some wear. The old Aim-point was usable but not much of a sight anymore, so I replaced it with a Tasco Pro-Point. This gun has been sitting, awaiting my return to bullseye competition. That return was "temporarily delayed" several years ago but the gun is ready, even if I'm not. With 4 grains of Bullseye and a locally cast 200-grain SWC, it would shoot slightly elongated one-hole groups at 25 yards when I was in training, or when shooting from bags.

The last 45 I got my hands on arrived in 1998. It is a stock Colt 1991A Commander that my brother, Jon, had before me. It has a matte black finish, high visibility sights and black plastic grips. It appears to have had a factory throating job and has usually been very reliable with hardball, hardball-equivalent reloads and target SWC reloads. It has also been accurate enough to hit a quart oil jug out to 60 yards.

The only time the gun has been unreliable was during an IDPA match. Because of a brain fade while packing my gear, I was short of magazines and had to shoot the match with one of my 10-round mags and one borrowed 8-rounder. The “Stage From Hell,” as my squad quickly named it, started by requiring us to shoot right-handed around the left side of a barricade — and went downhill from there. One guy had his pistol jam so solidly he could barely work the action. Another shooter barked his knuckles severely and bled on the floor. I was lucky and just had a consistent second-to-last round stoppage with my 10-round magazine, and an occasional random stoppage with the borrowed one. The next week — same range, same gun, same ammo — but different magazines — I shot strong hand, weak hand, and from a barricade — with no stoppages at all.



**One of the pin** gun’s best qualities is that it takes high-capacity magazines. Here it is with “not quite enough” 14-rounders.

I might have a little trigger work done on the 1991A1, but I don’t think I’ll do anything else to it. Except for that ill-fated IDPA match I haven’t done any competition shooting with the 1991A1. I’ve done a little plinking and have considered it for a carry gun and a house gun. Some authorities on self-defense say that customized guns should not be used for self-defense. Unscrupulous attorneys have been known to paint owners of customized

handguns as ‘Rambo’ wannabes or vigilantes. The 1991A1 is a stock gun’s ‘stock’ gun, so I suppose it would be safe to defend myself with it.

I have another 45, a replica black-powder 45-caliber under-hammer pistol. (Early American gunsmith Ashabell Cook designed the original pistol.) This replica was made in the 1980s by the Italian gunmaking firm of P. Bondini. I use a fired 45 ACP case filled with Pyrodex to load it.

The under-hammer design is supposed to be altogether American and that gives me a patriotic reason to like the Bondini replica. Another is that it is fun to shoot, and cleans up a lot easier than my other black-powder firearms.

In my collection of 45 ACP pistols I have one for nostalgia: my ‘starter’ pistol, the ‘MODEL Of 1911.’

There is a gun for bowling pins, steel shoots and some target shooting: the PARA/CASP P-14. It is my only real custom pistol and I’m very glad I got it before 1994, when high-capacity magazines were available and fairly cheap.

The S&W Model 1917 is available for PPC-type shooting, home defense, small game hunting and plinking.

When plinking palls, I have the utilitarian target 45 with the red-dot scope. I know that gun is going to make a good showing in bullseye someday; I just don’t know when.

I also have two good carry guns. The Officer’s ACP is one: stainless, small, powerful for its size and accurate. The 1991A1 Commander is the other carry piece. It is just 1/2-inch longer in barrel, slide and butt than the Officer’s and can use the same holsters as all my other 45s with iron sights.

To remind me of how good 45 semi-autos really are, I have the under-hammer blackpowder single shot.

I think I’ve covered the 45ACP waterfront pretty well, but you never know what might turn up at Northwoods, or one of the other ‘firearms emporiums’ I frequent. The only 45 I’m actively seeking is a used Smith & Wesson 625. A modern 45 ACP revolver that uses full moon clips and loads as fast as my slightly tired 1917 would be just the thing for some of my shooting.

When I find a 625 on the same day I have the money, I will have eight 45s in the collection. That can be thought of as a lot of guns in one caliber — or just as a nice start. As the guys I shoot with like to say, “You can’t have too many 45s.”





## The Luger Pistol

Model 1900 Luger Sporting Carbine with checkered walnut fore-end and buttstock. ■ Fred A. Datig

**F**OR GENERATIONS the most famous name in pistols has been Luger. There is no country however small or insignificant in which that name, or its foreign counterpart, Parabellum, is unfamiliar. To make the statement that it is the world's finest, most accurate, well designed or generally the "best" pistol would merely be expressing an opinion, but what are the reasons for its popularity? Why has it been accepted as the "best" and what is the story behind its phenomenal success?

To relate the tale from the beginning we must go back to a well known arms designer of his day, Hugo Borchardt, a naturalized American citizen. Borchardt was a mechanical genius of some note, for he not only entered the inventing profession at an early age but also developed many diversified types of mechanical devices.

The earliest record we have of Borchardt, as applied to the weapons field, is a letter written in his own hand to Mr. E. G. Westcott, President and Treasurer of The Sharps Rifle Co. of Hartford, Conn., dated March 18,

1875, when Borchardt was applying for the position of Superintendent of that company:

“... I took the superintendency of a shop in the worst condition at Trenton (New Jersey), designed the tools and finished a contract for 5,000 guns to the entire satisfaction of the Co. Mr. Meecham, who was treasurer of The Pioneer Breechloading Arms Co., hesitated at first in placing confidence in me, owing very likely to my age, I was 24 years old. There were about 60 hands employed. I afterwards had a foremanship in Singer (Sewing Machine Co.?) and several other places....”



**Model 1900 Luger** Sporting Carbine with checkered walnut fore-end and buttstock.



**A special condensation** for THE GUN DIGEST of the author's book of the same title. See the Book Review pages for price and further details.

His first patent, for a bullet grooving machine, was issued on July 21, 1874. This was followed by a bullet patching machine in 1875, a breech-loading firearm (Sharps-Borchardt) in 1876, a gun sight in 1877, another breechloading firearm, a shirt neck shaper, a magazine; rock driller; wire straightener; recoil magazine pistol (Borchardt Pistol, 1893), and numerous others.

Borchardt was versatile indeed, but it appears that his many patents added few coins to his coffers, for he was constantly changing jobs and addresses. His part in developing the Sharps-Borchardt rifle was his greatest achievement before forsaking his adopted country for Europe, where he remained for the rest of his life. He did not, however, give up his American citizenship.

Georg Luger was born in Steinach in Tirol in 1849. Originally an officer in the Austrian Army and with a decided liking for mechanical things, he became acquainted with Herr Mannlicher, inventor, among countless other designs, of the Austrian Infantry Ordnance Rifle. Together these two wizards produced an automatic, army rifle, (Luger's military career was at an end) opening the door to a new vocation, one that was to make Luger world renowned.

In 1891 Luger held a position with the firm of Ludwig Loewe of Berlin, from whence he was sent shortly thereafter to exhibit yet another military rifle in the United States, and where he more than likely first met Hugo Borchardt.

It is known that Borchardt left the United States and took a position as director of the Hungarian Arms Company, but he soon had a disagreement with the Hungarian War Minister, General Fejervary, and undoubtedly through the influence and persuasion of his new friend, Georg Luger, was offered a job with Loewe, which he accepted.

The next we hear of Herr Luger is in the year 1894 when he is once again exhibiting a new weapon before the United States Naval Ordnance Board. That new design was a semi-automatic pistol named after its creator, Borchardt!

The Borchardt Pistol was patented in all of the major countries between 1893 and 1896. Sometime in 1893 the "Automatic Pistol, Borchardt Patent" was offered for sale on the commercial market to the world at large. It was of the finest precision workmanship and only the very best materials were used in its construction. The pistol carried a beautiful, glossy satin finish. The barrel was approximately caliber 30, using a special bottlenecked cartridge. This cartridge was the forerunner of (and interchangeable with) the well known caliber 30 (7.63mm) Mauser round. It is also almost identical to the 7.63mm Mannlicher Pistol cartridge, Model of 1896.

The Borchardt was sold in the United States for \$30.00 — that price included a wooden shoulder stock with detachable cheekpiece, leather



holster, 3 spare magazines, a wooden dummy magazine which included tools, ramrod and oiler and an instruction manual. For an extra \$5.00 a fitted leather case was included. Unfortunately, few of these complete outfits remain intact today although they may be encountered from time to time in some of the larger collections.

The Borchardt Pistol was originally marketed by the Loewe firm but soon after the weapon was placed on the market, that company absorbed the Deutsche Metallpatronenfabrik of Karlsruhe, forming a company thereafter known as the Deutsche Waffen und Munitions-fabriken of Berlin-Karlsruhe (January 1, 1897). After that date all weapons were manufactured at the DWM plant in Berlin, and only ammunition was made at the Karlsruhe subsidiary.

On November 22, 1894, the Boston Herald printed a glowing report about Borchardt and his new pistol, noting that Georg Luger exhibited the new gun before a U. S. Navy small arms board at Providence, R. I. on November 21, and “that it had a great future before it.” The account went on to say that the “exhibitor fired 24 shots in 43¾ seconds ... range 110 feet, and all were hits.” The magazine was described as holding “eight cartridges, with nickel jacketed bullets,” and these were “the Luger rimless type.”



**Georg Luger 1849-1923**

It is interesting to note that it was Georg Luger and not Hugo Borchardt who brought the pistol to this country for these tests. Notice that the cartridge is indicated as being of the “LUGER rimless type” which leads us to believe that Georg Luger might have had more to do with the marketing of the pistol than is generally believed. Also of interest is the fact that although the press gave it an excellent notice the U. S. Navy failed to follow up the tests with any further trials of the Borchardt Pistol.

The U. S. Army also tested the Borchardt, for the Chief of Ordnance ordered a board of officers to meet at Springfield Armory on October 20, 1897 “to make a thorough test of, and report upon, a Borchardt Automatic Pistol Carbine.” This test was not pursued further so it may be assumed that the pistol did not meet with the complete approval of the officers on the board.

Georg Luger was more than an employee of the new firm of DWM. He received a handsome salary, could patent all of his inventions at company cost and had all of his traveling expenses cared for by the firm. Having no definite office hours, he was more of a partner with a fixed salary and a

lengthy contract. After five years his salary was doubled and his contract extended. A point of interest which should be interjected here is that Luger spelled his name exactly that way ... LUGER, and not LUEGER or LEUGER as has been erroneously quoted. His personal signature, as early as 1896, bears this out, and members of the Luger family do not recall the name ever having been spelled any other way.

According to close friends and relations, Borchardt and Luger were the best of personal friends though they oftgn had their differences at the factory. Years after the deaths of their husbands the two widows were constant companions. Luger had a son, Georg, Jr., who lives today in Berlin at the age of 81, and who has been of invaluable assistance to the author in bringing to light many of the facts concerning the Luger Pistol and its famous inventor. Herr Luger, Jr. was a famous pistol shot, with a Luger, of course, though he modestly disclaims any outstanding ability. His life was spent with much larger and more complicated weapons than those produced by his sire, namely torpedoes.

Excellent though it was, especially in relations to the other pistols of its day, the Borchardt left a great deal to be desired. The inventor believed his gun to be perfect, though, and so steadfast were his refusals to redesign even the smallest component that DWM, the manufacturers, called upon Herr Luger to make the desired changes. This he did in the following manner. The strong and sturdy action of the Borchardt was retained along with many other of the original features, some being altered slightly and others quite radically. The barrel, though shortened, maintained its long, slim appearance. The grip was inclined at an angle to the receiver and the recoil spring was incorporated in the grip, thereby doing away with two major problems, the angle of the grip and the bulky, protruding, recoil spring housing. The trigger and trigger cover were altered, the latter now completely concealing the rollerpin of the sear and partially covering the sear itself. The position of the ejector was changed from beneath the breechblock to the right side of the receiver, while the extractor remained unchanged. The lanyard ring was moved from the left side of the receiver to the rear, just above the grip safety, a new feature. Buttstock and toggle-knob were completely done away with and all screws, with the exception of the ones holding the wooden grips to the frame, were replaced by pins. The sights remained unchanged.

In the latter part of 1898, November 24 to December 8, a series of pistol trials were held at Bern, Switzerland by a board of army officers. Other pistols entered were: Mauser with 10-shot magazine, Mauser with 6-shot magazine; Bergmann with 10-shot magazine; Borchardt-Luger with 8-shot magazine; Roth with 10-shot magazine; Mannlicher with 7-shot magazine.

Explanation, assembly and firing of 50 rounds followed; then timing per firing of each weapon; target shooting, 3 frames each at 50 meters; endurance of 400 rounds with out cleaning or cooling, etc. The Borchardt-Luger was the only weapon in the endurance test to perform satisfactorily. Then followed dust and water tests, and the firing of 20 rounds in each weapon. Again the Borchardt-Luger was the only weapon with out malfunction. The point of greatest interest is the fact that the pistol is referred to as the “Borchardt-Luger.” This was a transition piece, a true cross between the Borchardt and the Luger which was to evolve from this and a later Swiss test.

A second series of tests were conducted by the Swiss. They were held at Thun on May 1 to 3, 1899. The Mauser, Bergmann, Roth and Mannlicher Pistols of the previous trials were retested. New models of the Mauser, Hauff and Browning were listed as were the new Mannlicher and a new Borchardt-Luger — these latter two having been modified according to the wishes of the Board. The 1899 tests were conducted in a manner similar to those of the previous year. The Borchardt-Luger of the latter tests was described as “made lighter in weight and fitted with a new safety.” It is more than coincidental that the United States patent on this piece was applied for two days before the start of these tests! \*The patent for the first of the true Luger pistols was filed on March 17, 1900 (British Patent 4399 #x2014; March 7, 1900) but was not granted in the United States until March 1, 1904 (75,414). This was a remarkably lengthy patent — 7½ pages of text and 10 pages of drawings and diagrams! Georg Luger wanted to be absolutely certain that no one would swipe the slightest detail of his new design.

In contrast to the Borchardt, the “Pistole Parabellum,” or “Parabellum Automatic Pistol, Borchardt-Luger System, Swiss Model 1900,” was all that had been expected of it. The weight had been decreased from 40 to 30 ounces, the barrel length from 7¼ to 4¾ inches and the overall length from 14 to 9 inches. Also, because greater accuracy could now be got from the

pistol, the buttstock was no longer necessary and thereby lessened the weight by another 15 ounces.

The Model 1900 was the first weapon to bear the famous scrolled DWM, trademark of the Deutsche Waffen und Munitionsfabriken of Berlin, where all earlier models were made.

A note of interest is the origin of the name “Parabellum,” thought to derive from a Latin phrase, Si Vis Pacem Para Bellum. Translated into German this became Bereite Den Krieg vor Parabellum, or in English, “If you Want Peace, Prepare For War.” Consequently, as the pistol was intended as a military weapon, the “For War” or “Parabellum” name came to be coined.



**Original Borchardt** automatic pistol, Model 1893, cal. 7.65mm Borchardt. Weight 40 oz., overall length 14”.

It is known throughout the world today by that name. In mentioning the name “Luger” to a European, with the possible exception of the English, do not be surprised to be met with only a blank stare! The name “Luger” was first applied to the pistol by Hans Tauscher, first representative for the Borchardt and Luger Pistols in the U.S., and later, after World War I, was registered by the post-war importer, A. F. Stoeger; consequently, the name “Luger,” although not an American name has become an American term! In some instances the name “Borchardt-Luger,” “Borchardt-Luger Parabellum” and designations such as “P.08” (meaning “Pistol, Model 1908,” the year the Germany Army first adopted the Luger), “M943,” the Portuguese military title, “Pistole 1900,” the Swiss version, etc. may be encountered.

The Model 1900 became a success overnight. On April 2, 1901, the Swiss “Bundersrate,” or governing body, officially became the first to adopt it by placing an order with DWM for 3000 pistols. On April 16, 1901, the Commanding Officer of Springfield Armory was officially directed to purchase 1000 Lugers for test by troops of the United States Army! Rock Island Arsenal was directed to fabricate a sufficient quantity of russet or black leather holsters and hardened steel combination tools. The 1000 pieces purchased by the U.S. were marked with small ordnance-bomb proofs, and most of the holsters carried the familiar “U.S.” on the flap. These pistols were the original “American Eagle” type, being so marked over the chamber. As far as can be determined these marks were unofficially stamped, and later commercial types carried on with the identical crest. Because these pistols and holsters were issued to and used by U.S. troops, they are considered by some to be U.S. martial weapons!

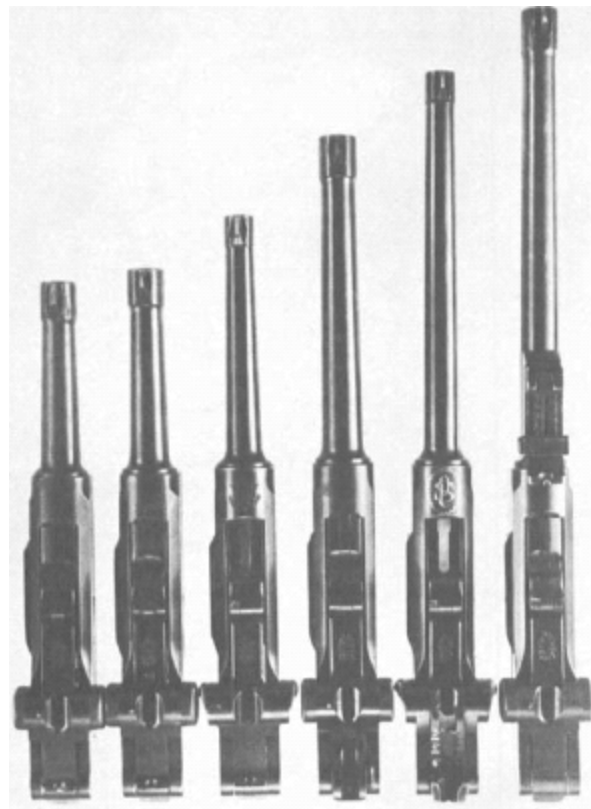
The Swiss and Americans were not the only ones to test the Model 1900 for in 1903 and 1904 at Rosenburg, Sweden, extensive government trials found the Luger and the Model 1903 Browning in the semi-finals. Although the Swedish report favored the Browning it noted that the Swiss were issuing the Luger to mounted troops. Similar reports indicate that the Parabellum was issued to German officers for use in the Boxer Rebellion in 1901. Other countries to test the Luger in those early days included Austria, Spain, Canada, Russia, Brazil, Luxemburg, Holland, Bulgaria, Norway, Portugal, Chile and several others.

Between 1901 and 1906 rapid advancement was made in making the Luger a better gun, with both military and commercial markets in mind. The first modification of the original was offered in 1902, and was designated the model of that year. Few of these were produced — the type is quite scarce today — but they’ll be remembered for one outstanding reason; they were the first weapons to chamber the 9mm Luger cartridge! Now, half a century later, it is by far the most popular and widely used cartridge in the world. This was an unusual situation — the pistol itself was not successful but the cartridge flourished. Probably an accident — or could it have been planned that way?

The first model to be officially adopted by the German Government was the “Marine Modell 1904,” or what has become known as the “Navy” Luger. Thus it was the German Navy and not the Army who first realized the merits of the Luger. The Naval Luger has a 6-inch barrel with a 2-

position rear sight situated on the extreme rear of the rear toggle link. Caliber was the new 9mm.

One of the most interesting, different, costly and coveted variations of the Parabellum is the “Luger Carbine,” which was introduced about 1904 in an attempt to compete with similar weapons marketed at that time by Mauser, Mannlicher and Bergmann. With a barrel too long to be practical as a pistol and too short to meet the requirements of a rifle, it was more nearly the equivalent of a “brush gun.” The Luger Carbine is actually a Model 1900 with a heavy 11¾-inch barrel recoiling with in a checkered walnut fore-end, and detachable walnut shoulder stock. The 100 to 300 meter rear sight is mounted on the barrel just in front of the chamber. Despite the many rumors of special specimens with assorted differences, all Luger Carbines of the factory production lot are identical and were only produced in caliber 7.65mm Luger. A special cartridge containing one-seventh more powder and having a blackened case was developed for use in the Carbine models.



**DWM Lugers** with various barrel lengths; left to right: 3, 4, 4¾, 6, 7, and 8.

The German Kaiser, Wilhelm II, because he had difficulty in handling a full sized hunting rifle due to the deformity of his left arm, was extremely fond of hunting deer on his many estates armed with his Luger Carbine. When, prior to the First World War, the President of the United States, Theodore Roosevelt, paid a visit to Germany, he was a guest of the German emperor on at least one of those hunting excursions and was presented with a Luger Carbine by the Kaiser. This gun bears a plaque denoting the presentation, and may be seen today at Roosevelt's home in New York on display with his many other weapons.

The year 1906 brought what was to become known as the "New" Model. This is a colloquial designation, not necessarily an official factory term. The part that was new in the "New" Model was the replacing of the old laminated flat recoil spring with one of coiled type. As all Lugers after 1906 have the coiled spring, they are all designated as "New Models," and consequently all models with the flat recoil spring are called the "Old" Model.

Of even greater historical interest than the U.S. Army Tests of 1901 were the trials that took place in the spring of 1907. These were the tests which led to the adoption by the U.S. Government of the Colt Automatic Pistol, caliber 45, but not before it had successfully competed and won out against the caliber 45 Luger! Records indicate that two, possibly three, of these large Lugers were personally produced by Georg Luger and brought by him to the United States for the Army Tests. Prior to his arrival, Frankford Arsenal supplied him with 5000 rounds of caliber 45 ammunition with which to experiment. Luger pulled the bullets and, with his own special powder, loaded 11mm Bergmann cases which thereby formed the 45 Luger cartridge. The tests were originally planned for the year 1906 but Luger was ill and the tests were postponed until the following year!





**Disassembling the Luger:** remove the magazine (J) and make sure the chamber is EMPTY. With the right hand, grasp the pistol as shown, pulling the barrel and receiver (E) rearward firmly. Rotate the locking bolt (D) 90° downward; the trigger plate (C) will now fall out. The barrel and receiver may be slid forward off frame (A). The breechblock and toggle linkage (F) may be separated from the receiver by pushing out the connecting pin (H). The trigger (B) and the locking bolt may also be removed if desired. To assemble, reverse operations — make sure that the coupling link (G) does not hang into magazine well but drops behind it and in line with link lever (K).



The 45 Luger is merely an enlarged version of the 9mm Model 1902/06 with slight modifications necessitated by the use of the larger cartridge. The only specimen known to exist today bears the serial number “2” and is truly a fine example of Luger workmanship. The initials “GL” appear on the rear toggle link while the absence of proof marks corroborates the fact that this was a super special experimental pistol never intended for sale.

As mentioned earlier, the German Army adopted the Luger in 1908, a move which insured its success for decades to come. The grip safety was omitted from the Model 1902/06 and the first specimens were produced with out any accomodation for a “holdopen device.” No stock attachments appeared on these early “P.08’s.”

With the adoption came large orders which could not be filled in the time allotted by DWM. Consequently, the Royal German Arsenal at Erfurt was appointed co-manufacturer. Many thousands of Lugers were turned out of that great establishment, all bearing the insignia of the arsenal, a large crown surmounting the name “Erfurt,” stamped on the forward toggle link instead of the DWM trademark. Almost all DWM and Erfurt Lugers produced for the military will bear the date of manufacture and acceptance stamped into the receiver ring. A new system of numbering was initiated wherein the block of numbers never exceeded 9,999. Once that figure was reached a letter was added beneath the numbers beginning with “a” and so on through the alphabet. This letter becomes as much a part of the serial number as the numbers themselves, a point to remember when recording serial numbers on Luger pistols. With out the inclusion of the letter,

hundreds of Lugers would carry the identical number and the difficulties which might arise may well be imagined.

In 1914, Germany entered the Great War armed with two basic Lugers, the military Model of 1908/14 and the Naval Model of 1904/14. The military or Army Model is almost identical to the Model 1908. All types have a 4-inch barrel, stock lug, holdopen device and a letter of the alphabet following the four digit serial number. All are caliber 9mm and will have the date of manufacture over the chamber. According to unofficial sources, approximately 2 million 4-inch barrelled Military Models were produced by both manufacturers, DWM and Erfurl, during the First World War period. In addition to this staggering figure, about 50 million replacement parts were supplied. The majority of these pistols and parts were of DWM manufacture.

Like the military Model, the Naval Model was also exactly the same as the earlier Navy Model of 1908 (1904/08), except for having a wartime date over the chamber. All had the 6-inch barrel, stock lug, 2-position rear sight, and a letter following the serial number. Not nearly as many Navy Models were produced due to the much smaller demands of the junior service.

In 1914, a new model was introduced, “new” consisting of the fitting of an 8-inch barrel to the standard Military Model, and the elimination of the rear sight from the rear toggle link. The caliber was 9mm and the back sight, of tangent type, was on the rear of the barrel just forward of the barrel flange. In this respect, it is similar to that on the Luger Carbine, but the sight itself was not the same. It is adjustable from 100 to 800 meters in 100-meter graduations. One unusual thing about this sight is that it has built-in drift allowance to the left. In other words, when the sight is elevated, it not only moves upward but also to the left to compensate for the drift of the bullet over long ranges. Some front and rear sights are adjustable by means of a tiny set screw on the front sights of Naval models. The Model 1914, or “Long Barrelled Model” as it is sometimes called, was issued complete with a long holster, a shoulder stock and a 32-round helical, or snail, drum. It is claimed that these were issued especially to artillery troops, to machine gun units, and to auxiliary cruisers or “Z” boats in place of a rifle or carbine. The reasoning behind this move was, undoubtedly, that a lighter, smaller and more compact sidearm than the rifle was needed — one that could easily be converted into a pistol-carbine for long range firing, and be

much handier for the man who had to serve larger weapons. These “Long Barrelled Models” are quite handy and extremely accurate, and all in all, are a pleasure to fire. The loaded drum makes for a rather bulky weapon but not really as bad as one might think.

### **After World War I**

If there is any period in the complete history of the Luger where almost every rule is broken regarding models, variations, serial numbers, or anything on which a definite conclusion may be based, it is found in the post-World War I period. Perhaps the most important influence upon Luger production after that war was the Treaty of Versailles. This Treaty limited production to calibers not larger than 8mm and barrels no longer than 100mm, or 3 15/16 inches. These restrictions did not require a complete retooling by Luger manufacturers, however, as the pistol is so designed that by merely changing the barrel, and no other parts, the Luger is transformed from one caliber to the other! Because the standard military issue barrel was 4 inches, or 1/16th-inch longer than the terms of the Treaty would allow, the barrel had to be shortened in order to conform. The Germans chose a barrel with a length of 3 7/8 inches or approximately 98mm. This model became known as the post-War Model, or the Model 1923.



**Model 1902 Luger**, first to use the 9mm Parabellum cartridge. Note heavy 4 bbl. and magazine cartridge counting strip.



**A. F. Stoeger Luger** imported by that firm in the 1930s. (Photo courtesy Sidney Aberman.)



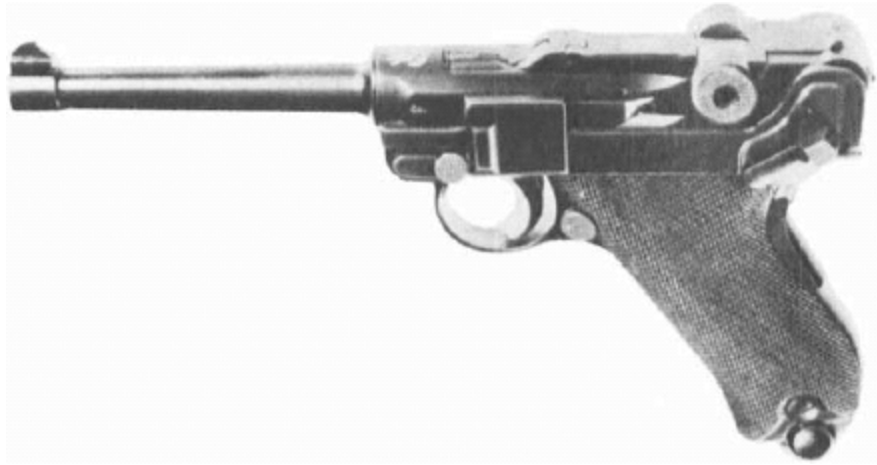
(LEFT) **Swiss Model 1929** (06/29) Luger, cal. 7.65mm, 4¾ bbl. Note stepped receiver ring, the “S” above thumb safety, the straight line of the grip, and the grip safety.



(LEFT) **ERMA 22** conversion unit fitted to Luger.



**The rare 45 cal. Luger, serial #2, submitted for U. S. Army test in 1907.**  
(Photo courtesy Sidney Aberman.)



**Model 1900/06 American Eagle** Luger. Note **LOADED** on the extractor instead of the more common **GELADEN**. Cal. 7.65mm.

For all practical purposes, the Model 1923 was a Military Model of the 1908/14 type with the two differences of the shorter barrel and smaller caliber. Strangely enough, this Model 1923 was produced almost exclusively for export outside of Germany. The Germans themselves, theoretically restricted by the Treaty of Versailles, continued not only to use the 4-inch barrelled 9mm weapon but also to manufacture them for military and police use inside Germany.

Also under the terms of the Treaty, Germany was permitted to retain an army of 100,000-man strength. These men had to be armed and they assuredly were. In the days immediately following the war, regular Military Models of 1908/14 were issued to this army. These were pistols that had either seen service during the war or were assembled from parts that had been finished but never issued. The only distinctive marking of these particular guns was a new date of issue added to the one already marked over the chamber. Consequently, we find the “two-date” model. (For example, a Luger that already had the date “1918” over the chamber now had “1920” above the “1918,” not superimposed upon it. Both dates may be easily distinguished.) These pistols were quickly relegated to the police, however, for whom the “second rate” weapons would suffice, and this double-dating became an outmoded practice very rapidly. In a very few instances, the “two-date” Model may be found with police or military markings on the forward part of the frame, just below the trigger guard.

By 1920 the Germans had begun to manufacture or assemble (probably the latter), “as new” Lugers for the Army. These, too, were EXACTLY like

the Model 1908/14 except that they were dated “1920,” “1921” or “1922.” As I recall, I have never seen any with dates other than these three years. These Lugers were of very fine workmanship, for this period, and appear to have been made entirely of new parts.

Somehow the German Navy benefited by this “stretching” of the limits of the Treaty of Versailles, as Naval Model Lugers have been seen, precisely 1908/14 specifications in all respects, also dated “1920,” etc. and with no other date. Almost all of these types were caliber 9mm! A few have been encountered in caliber 7.65mm, however.

About 1922 the old, established arms firm of Simson & Co. of Suhl, Germany was given a contract to supply Lugers to the 100,000-man Reichswehr. According to reliable sources, they were the only official suppliers of pistols for the 10-year period 1922 to 1932. These Simson & Co. Lugers were assembled from surplus parts left over in large quantities from World War I. In some cases, the receivers were dated. The only date so far seen on Simson & Co. Lugers, however, is that of 1918; the majority of them have the date ground from the receiver ring, leaving it with out markings. A few such pieces have been noted chambered for the 7.65mm Luger cartridge. It is more than likely that such pistols were intended for the commercial market, as were possibly a few of those chambered for the 9mm cartridge. Simson & Co. Lugers are identical with the standard Military Model of 1908/14 type, except for markings. All examples observed have 4-inch barrels, stock lug, holdopen, etc. Instead of the DWM trademark, the words “Simson & Co., Suhl” appear on the forward link of the toggle. Lugers assembled by Simson are relatively uncommon but they can hardly be considered “rare”; let’s call them “scarce.”

Great numbers of ex-military issue Lugers were “rejuvenated” and heaped upon the commercial market. Some of these were rebarrelled with “as new” surplus military barrels and others were not rebarrelled at all. Almost all had the dates ground from the receiver ring. Original proof marks were oft en ground away also and replaced by commercial proof marks of that period. In some cases, the old marks were left on, and one or two commercial ones were added.

An extremely interesting and unusual piece, whether it is of this period or not, is the so-called “Baby” Luger chambered for the 7.65mm Browning, or .32 ACP, cartridge! This strange experimental pistol is reported as “smaller in the overall” than an ordinary Luger, or approximately in the



same relation to a standard Luger as the “Baby” Nambu is to a large Nambu Pistol. Very few of these pieces were produced, the number reportedly not more than a dozen. One example has been reported as bearing the serial number “8” and with the DWM trademark on the toggle. No other specifications have been forthcoming.

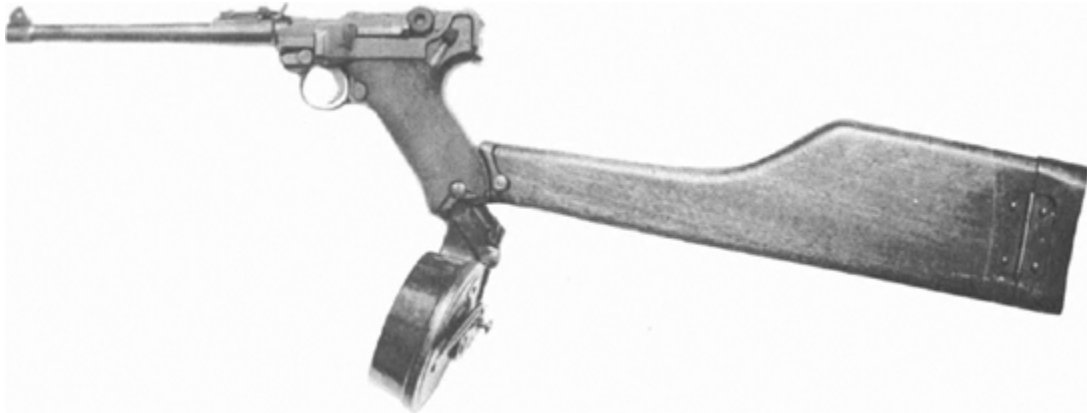
Another experimental Luger, certainly worthy of special note, is the “5-shot” or “Pocket” Luger, consisting of a shortened (possibly 2-inch) barrel, normal action and shortened frame, housing a 5-cartridge capacity magazine. The “5-shot” was one of extremely limited production, no more than one or two examples having been produced.

Even before the machine pistol, or sub-machine gun as it is known in this country, first emerged as an accepted military weapon, attempts were made to convert the Luger from semi-automatic to fully automatic fire. Though many attempts were made, none went beyond the experimental stages. This was, undoubtedly, due to the delicate trigger mechanism of the Luger and also to the fact that even in normal semiautomatic firing the ammunition used in a Luger must be fairly well standard in power or the various stoppages common to the Luger will occur.

One very unusual Luger is a Model 1908 of World War I vintage, with a 4-inch barrel and a 12-inch silencer about 1½ inches in diameter. A threaded metal disc is permanently attached to the barrel in about the same position as the front sight, which has been removed; the tube, or body, of the silencer screws onto the disc. It is assumed that the tube was filled, at intervals, with rubber or composition baffles and possibly steel wool or some comparable material.

Experiments were conducted at the factory in an attempt to perfect a silencer for the Luger. These tests called for removing “0.36 gram of powder (from the cartridge) and replacing it with only 0.25 gram of powder.” This charge reduction was necessary because the bullet velocity had to be reduced below the speed of sound (1126 feet per second at 68 degrees Fahrenheit) or the silencer could not function efficiently. To further insure the lower velocity the weight of the bullet was increased. However, one problem remained — the silencer functioned as desired, but the pistol would fire only as a single shot. This was because “a Luger with silencer does not function automatically due to the heavier bullet and lesser powder charge, the gas pressure being too small to allow sufficient recoil for normal

functioning of the action.” No record of further similar tests has been uncovered.



**Model 1914 Military Luger**, 8 barrel with tangent sight, wooden holster-stock, and 32-shot drum. Caliber 9mm.

By 1930 the confusion and restrictions of the post-war period had begun to relax and standardization again became the order of the day. Once more DWM changed hands, finally becoming a member firm of the same holding company that controlled the famous Mauser-Werke at Oberndorf on the Neckar. On May 1, 1930, 800 machines, tools and technicians were transferred from the Berlin branch of the DWM factory to the Oberndorf location. DWM then concentrated on the production of ammunition and Mauser became the foremost supplier of Lugers from that time until production was finally halted in 1942.

While the changeover from DWM to Mauser was taking place, Simson & Co., continued to supply all Lugers to the German government. Their contract with the military was terminated in 1932, however, and no more Lugers were produced by that firm thereafter.

About 1933, when Adolph Hitler rapidly ascended to power, steps were taken to legally sidestep most of the restrictions placed upon Luger production. The point was argued, and won, that as cylinders of revolvers were not considered to be a part of the length of the barrel, neither then should the chamber of the barrel on an automatic pistol be considered when measuring barrel lengths.

It was a small task to completely throw off the remaining restrictions and return to the old proven and desired ways of Luger production with out the annoying regulations.

Mauser continued to use the old DWM trademark until late in 1934 but in that year secret code names were given to the major producers of war material, and Mauser was assigned the code name "S." The "S" was replaced almost immediately by "S/42." At the same time, the commercial Mauser Banner trademark first appeared on Luger Pistols. There was a definite reason behind the using of both the code name "S/42" and the commercial Mauser Banner. The former were elements of secret production, employed to confuse the manufacturer's identity. The latter was marked on arms supposedly intended for commercial sales, and a few of them actually reached the commercial market. Most, however, were destined for the rapidly growing German military forces of the early and mid-thirties. To doubly insure their carefully guarded secret from being discovered, pistols were not only marked with the code name but also with a code date of manufacture. Consequently we find "S/42" Lugers carrying the letters "K," indicating manufacture in 1934, and "G," indicating those made in 1935. Production under these circumstances did not get under way until late in 1934, so few pieces bearing the "K" designation will be encountered. Those marked with the letter "G," or 1935, were in much greater evidence. By the beginning of 1936, the cloak of secrecy was thrown off and Lugers of "S/42" and "Mauser" manufacture, which were in reality one and the same, were marked with the actual dates in numbers over the chamber. It should be noted that the "K" and "G" markings appeared over the chamber in the exact place where the date would normally have been. The names "S/42" and "Mauser" were placed on the forward link of the toggle where the scrolled DWM trademark had previously been encountered. Those few Lugers intended for commercial sale carried only the "Mauser" marking, and were with out dates or other stampings over the chamber. Examples were produced in both 7.65mm and 9mm calibers. All had barrels 4 inches long.

Mauser, however, was not the only supplier of Lugers in the 1934-35 period — during that time another name was added to the growing list of Luger producers. It has been said Herman Göring, Marshal of the German Air Force, had a personal interest in weapons produced by the Heinrich Krieghoff Waffenfabrik of Suhl. For one reason or another, Göring decided that his Luft waffe would be supplied with Lugers produced by that firm. In those days, however, demand far exceeded ability to supply, and the only manner in which any sizable quantity of Lugers could be obtained in a

relatively short time was through the assembly of the millions of spare, or replacement parts left over from World War I. Krieghoff acquired the necessary parts, doubtless through his powerful political connections, and began to assemble the Lugers requested by Göring Like the Mausers, these were marked with a code date, but not with a code name. Because their full production did not begin until 1935, Krieghoff Lugers are to be found bearing only one code date, an "S," indicating the year 1935, stamped over the chamber. As Krieghoff's capacity to produce was on a much smaller scale than that of Mauser, and also because he too marketed a small portion of his total output commercially, it was evidently not deemed necessary for the Krieghoff Lugers to employ a code name. Consequently, as did DWM, Krieghoff marked all of his Lugers with his commercial brand. The trademark of Krieghoff was an anchor, the upright body of which was formed by a dagger pointing downward, the letter "H" on the left side of the anchor and the letter "K" on the right. Directly below was the wording, in two lines, "Krieghoff" and "Suhl." Some examples, however, bear only the word "Suhl," the "Krieghoff" having been omitted.

REGARDLESS OF THE FACT THAT IT IS NO LONGER PRODUCED,  
THE LUGER IS NOT A "HAS BEEN" BY ANY MEANS. OVER A  
PERIOD OF 40 YEARS LITERALLY MILLIONS WERE PRODUCED,  
MOST OF WHICH ARE TODAY IN THE HANDS OF THE MILITARY  
THE WORLD OVER

Others, some of which are marked only with the word "Suhl" and still others with both words, are found with the added markings "Heinrich Krieghoff Waffenfabrik, Suhl" in two lines on the left side of the frame. Pieces so marked will usually have a letter "P" preceding the serial number. Those Krieghoff Lugers having the letter "P" before the serial number, may not necessarily have the wording on the side of the frame, however. Guns with the "P" are examples of the few commercial Krieghoff Lugers placed for sale in both 7.65mm and 9mm. Areas over the chamber will be unmarked on these commercial pieces. The trademark is, of course, stamped on the forward link of the toggle. Beginning in 1936 Krieghoff, like Mauser, dated his products with the year of manufacture in numbers. Those Krieghoff Lugers with the code date "S," or 1935 over the chamber were probably not serial numbered higher than #5,000. Pieces dated "1936" have been observed from the #5,000 series to the #7,000 series. Unlike

those of Mauser manufacture, Krieghoff Lugers do not have a letter following the serial number, though with this one exception, they are numbered in the military system. A few examples may be encountered bearing dates of "1936" and "1937" which do not conform to the proper serial number range. These were pieces assembled from already numbered surplus parts at those later dates.

Some of the Mauser-made Lugers will be found bearing not only the commercial Mauser Banner but also carrying a date-stamp over the chamber. Such arms were originally intended for commercial sale, but when the German military forces demanded more Lugers than normal Mauser production could supply, pistols previously set aside for the commercial market were merely stamped with a date and accepted by the Army as regular issue weapons.

In 1936 the secret code names were augmented. Mauser was assigned the code number "42" in addition to the "S/42" already in use. It is not unusual, then, to find Lugers bearing the code name "S/42" and, for example, the date "1936," and also to encounter "42" pieces having the same date. To add to the confusion, pieces were also produced bearing the same date, "1936," and inscribed with the commercial Mauser Banner.

In 1941 yet another code name was given to Mauser, in this case "byf." Most examples of "byf" Lugers will have black plastic grips, a semi-successful experiment. These "byf" Lugers were in addition to and did not replace the "S/42", "42" and "Mauser" types.

According to reliable sources none of the Luger producing firms were permitted to sell their pistols commercially after 1940 or 1941. All production was claimed by the Wehrmacht, the German Armed Forces, who had the power to dispose of any surplus as they saw fit.

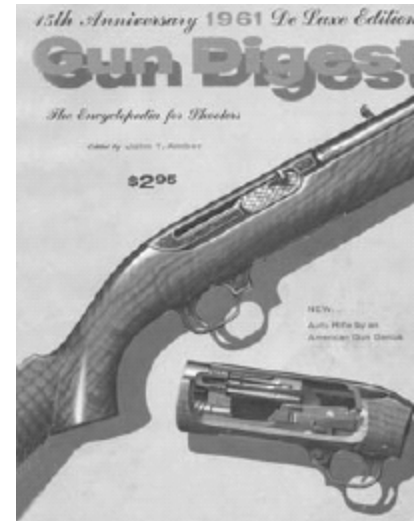
In 1945 and 1946 a small quantity of Lugers were assembled from surplus parts left over from 1942, the year in which official production of the Luger was superseded by that of the Walther "P.38." These were put together at the direction of the French Occupation Forces, in whose zone of occupation the Mauser factory was situated. Exact amounts produced and specifications thereof are not known. Krieghoff, too, assembled a few hundred Luger pistols, in the period following the war, for American occupation troops. It was among these latter that the unusual pieces bearing no date and no name were found.

After exactly 30 years of Army service in Germany progress finally caught up with the Luger when that Government adopted the Walther "Heeres Pistole," or "P.38" (Pistol Model 1938), though production continued through necessity until 1942. Switzerland, which since 1924 had produced its own Luger, followed suit in 1948, when the Neuhausen replaced it. The loss of World War II by Germany was the coup de grace for the Luger. Countries that had been dependent upon Germany for their supplies of the pistol were forced to turn in other directions when their orders could no longer be filled by the Mauser Werke.

Regardless of the fact that it is no longer produced, the Luger is not a "has been" by any means. Over a period of 40 years literally millions were produced, most of which are today in the hands of the military the world over. There are thousands of soldiers, marksmen and gun fanciers to whom it will never lose its value as a weapon for defense, shooting, or as a collector's item.

Quite possibly Luger production may never again be resumed. Should this prove to be true, all Lugers, especially the rarer ones, will increase in value and the demand will grow. No matter which course the armies of the world pursue, the Luger is now and shall always remain one of the greatest handguns in history.

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## MARS Automatic Pistols

■ Larry S. Sterett

**A**LTHOUGH automatic pistols have never replaced revolvers as being the most suitable handguns for all purposes, feeling at the close of the 19th century was that they might. Several automatic pistol designs had appeared on the continent of Europe, and were receiving wide acclaim, among them the Mauser, the Borchardt, and the Pieper. About this time an Englishman, Hugh W. Gabbett-Fairfax, came forth with his design for the ultimate in autoloading handguns. By combining a locked breech of great strength with a cartridge of high velocity, he intended to produce a weapon which would be limited only by material strength — and the strength of the user!

The first actually known Mars pistol appeared in April, 1898, and was submitted to Mr. T. W. Webley, of Webley & Scott Revolver & Arms Co. Ltd., in May of that same year. Public feeling and Mr. Webley's reaction to

this English designed pistol is recorded in the following brief passage from Webley history:<sup>1</sup>

“An article in the Daily Chronicle dated Feb. 2nd, 1899, drew attention to several automatic pistols which were being marketed. They were the Mauser, Borchardt and Pieper. The article went on to say that it looked as though the revolver was going to be replaced by the automatic and that Birmingham was doing nothing to replace the business it was about to lose. It accused the British manufacturer of being too conservative and too slow.”

Countering this report, Mr. Webley gave an interview to a reporter of the Birmingham Daily Post (Apr. 2, 1899), disclosing that, as noted above, Gabbett-Fairfax's pistol design, in crude form, had been submitted to Webleys.



(Top) **The Mars Model 1899.** The second known model and probably the first weapon produced by Webley & Scott in an attempt to refine the crude Mars design. Locking by revolving lugs was retained, but an outside hammer was provided. An experimental model, it was soon replaced by a less cumbersome design. Overall length, 12½” with a 6” bbl. Weight, with empty 8-round magazine, 54 ozs. Completely finished, it is marked on the bbl.: MARS AUTOMATIC PISTOL (Cal..36); on the breech-bolt: MARS



AUTOMATIC PISTOL (Cal..36) MADE BY THE WEBLEY & SCOTT REVOLVER & ARMS CO. LTD. There is no serial number. (Below) **The first known Mars pistol**, the one submitted to T. W. Webley in May, 1898. The pistol was completed by Gabbett-Fairfax in Apr., 1898, and patents 9066–9068 were granted for its design. 12½” long overall with a 6” bbl. Weight, with empty 8-round magazine, 53 ozs. Cal., 360. Never completely finished, tool marks are visible, and it’s still in the white. No markings or serial numbers. Both of the above are in the Webley & Scott, Ltd., collection in Birmingham.

“Mr. Webley formed so high an opinion of the Mars that the Company undertook to work out the details at their own expense and take sole license for manufacture when completed.

“It was a very heavy pistol and took a large charge of cordite or nitro powder. Several models were made but the pistol was not produced in quantities.”

Although there were other weapons and pistols preceding the 1898 pistol, dating from 1895 and 1896, none survived. They were of a different design from the four-lug, rotating breech-bolt 1898 model and later versions. The 1898 design, granted British patent 9067, was chambered for a bottleneck 360 caliber cartridge. The magazine was located in the grip, but instead of the cartridges being fed directly into the chamber, they were shoved onto a lifter, located forward of the magazine and above the trigger guard. This lifter was then forced upward by spring action and the cartridges fed into the chamber.

The first known model of the Mars made by Webley appeared in late 1899. It used the Model 1898 method of locking and feeding, and was the same 360 caliber. The only major change was an outside hammer to facilitate cocking.

Under the direction of Gabbett-Fairfax and one W. J. Whiting<sup>2</sup> the Webley concern produced about 12 specimen pistols, in calibers 8.5mm, 9mm, 360, 10mm, and 45 Long, these supposed to have been marked with Roman numerals from I to XII. A few of them were modified at a later date, such modifications being indicated by a letter F following the Roman numeral.

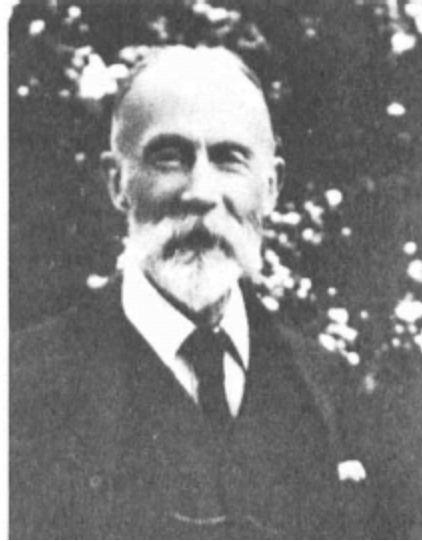
In 1900 the Mars pistol became, more or less, standardized. Patent 14,777 (Aug. 17, 1900), was for a weapon using the same method of

locking as the previous models, but with a much shorter breech-bolt and an entirely different method of feeding. Instead of the cartridges being fed forward out of the magazine, they were now pulled backward out of the magazine, tilted upward, and then fed into the chamber.

In 1901 the Mars Automatic Pistol Syndicate, Ltd., of Birmingham, was formed to promote the sale of the pistols. About this same time Webley lost interest in the Mars and stopped further development, turning the pistols over to the inventor. The Syndicate intended to outfit a factory for the manufacture of the Mars, but never did so. Instead, the pistols were made by small gun-makers in Birmingham and in London, with the design and improvement work being done by one Col. Johnstone and a Mr. Brown, coworkers of Gabbett-Fairfax. Beginning with a new number 1, Syndicate specimens went to at least number 56. The calibers available were the 8.5mm, 9mm, 360, 45 Long and 45 Short. The 10mm cartridge was dropped and 472 caliber, on which the inventor had begun working in March, 1901, was also dropped when even the 450 Long proved too powerful. Pistols were made with barrels as long as 12 inches, some had a provision for a shoulder stock.



**The Mars Model 1899** -disassembled. Note the three locking lugs on the rotating breech bolt and the conventional magazine.



Hugh W. Gabbett-Fairfax

The British government had, for some time, been considering the possibility of adopting the automatic pistol as a service weapon. A Committee was appointed to study the weapons available, and on Jan. 7, 1901, the War Office had opened the first file, relating to the Mars automatic pistol. The first firing trial of the Mars did not take place until late March of 1901, but the Committee met on March 11, 1901, with reference to the Mars. The minutes of this meeting follow:

*Minute No. 416/11.3.1901 W.O. Paper 84/H/3494 Subject U9./6. Automatic Pistols "MARS"*

Director General of Ordnance submitted, for the consideration of the Committee, the following description of the above pistol:

"The 'Mars' pistol is loaded, cocked, and the fired cartridge ejected automatically. The cartridge is inserted into the barrel of the pistol, whereby the entire force of the powder gas is utilized, and large charges of slow-burning smokeless powder can be used.

"The revolver, on the contrary, must be cocked after each discharge, and the powder is not consumed in the barrel, but in a separate detachable chamber at the rear of the barrel, a large proportion of the propelling power of the gas being thereby wasted. Smokeless powder can be used in the revolver in very limited charges only.

"It will be possible, when the plant necessary for production in quantities has been laid down, to place upon the market a thoroughly reliable automatic pistol at a cost no greater than that of a first-class self-extracting

revolver; its weight and length do not exceed that of the latter; the working parts are not so numerous, and the ‘Mars’ automatic pistol is not more complicated than any self-extracting revolver.

	Calibre	Charge	Cordite	Projectile	Weight
XI.	10mm or 0.394"	12 grains	Flake	175 grains	2 lbs. 14 ozs.
X.	9mm or 0.354"	12 "	"	160 "	2 lbs. 13 ozs.
III.F.	8.5mm or 0.335"	10 "	"	150 "	2 lbs. 9 ozs.
VI.	0.360"	12 "	"	156 "	2 lbs. 10½ ozs.
VII.	0.360"	12 "	"	156 "	2 lbs. 15 ozs.

**Length of barrel, 9.2"**; number of shots in magazine, 10. N.B.

These pistols are shorter over all than revolvers with 7½" barrel, except No. VI, which has a barrel 12" long.

“The following are the standard models of ‘Mars’ pistols:

“With any of these pistols very accurate shooting can be made at 300 yards with out rest or stock. With the detachable stock and 12" barrel the shooting is good at 600 yards. The ‘Mars’ pistol, is, in fact, from its very high velocity and great power, a small and very compact rifle. Long and short barrels can be supplied with any model, and all parts of the pistols interchange where the model is the same.

“A practically continuous fire can be maintained with the ‘Mars’ firearms, as the cartridges are fed into the weapon in magazine clips which are instantaneously inserted, and which are made to contain as many as twelve cartridges.

“The ‘Mars’ rifle can be retained in the firing position at the shoulder, and will fire when the trigger is pulled, eject the fired cartridge, and reload automatically. The magazine contains ten cartridges. In the sudden rush of a. numerous body of enemies, or when in pursuit of dangerous game, the immense advantage thus possessed by the bearer of a ‘Mars’ rifle is apparent. Automatic rifles on the ‘Mars’ system will be produced about as cheaply as any high-class non-automatic military or sporting rifles.

“Automatic shotguns<sup>3</sup> on the ‘Mars’ system, superior in many respects and equal in all, except as regards finish, to the very best London hand-made double-barrel shotguns, will be marketable (with a handsome profit) at about 20 per cent of the cost of the latter.

“The ‘Mars’ is the only automatic firearm in which the recoil is completed and the barrel and breech block move forward together in their return movement to the normal position before the breech block is unlocked

from the barrel. Therefore, the 'Mars' system ensures absolute safety, as the breech block is not unlocked until the gas from the discharged cartridge has left the barrel. Nor can the 'Mars' weapon be discharged until the breech has been entirely closed.

"Mr. Gabbett-Fairfax and Lieut. Col. Johnstone attended [the meeting] and explained the mechanism of the pistol.

"(The) Secretary (is) to arrange for Mr. Gabbett-Fairfax and Lieut. Col. Johnstone to take the pistol to Enfield Lock and make a firing trial. The Supt. R.S.A. F.<sup>4</sup> to furnish a report of the result."

On March 13, 1901, Fairfax wrote to the Director General of Ordnance, "I shall be prepared with an automatic magazine pistol to fulfill the following conditions, viz.: Magazine to contain eight cartridges. Projectile, 250 to 260 grains. Muzzle velocity not less than 1,000 f.s.," and he added that such a pistol would be ready for trial by the 1st of June.



**The upper pistol** is marked MARS PISTOL 9mm = 354 on top of the barrel rib. 11" overall with an 8¾" bbl., weight with an empty 10-round magazine is 52 ozs. The numbers 93/647 are scratched upside-down on the receiver. Similar numbers appear on other models. What they signify is not known.

**The lower pistol** is marked MARS PISTOL 8.5mm on top of the barrel rib. Also 11" overall with 8¾" bbl., with empty 10-round magazine it weighs 49 ozs. 93/648 is scratched upside-down on the left side of the receiver.

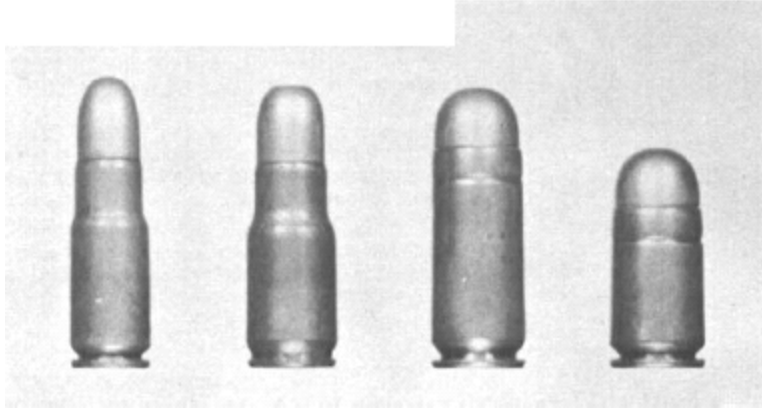
**A pistol similar** to the lower pistol is in a Washington, D.C. collection. It carries serial number 19. The left side of the receiver is engraved: PISTOLET MARS, Brevette S.G.D.G., A. Guinard, 8 avenue de l'Opera Paris. (See footnote 8.)

Still in its original case, along with a box of 8.5mm Mars cartridges, spare mainspring and an extra magazine, it is believed to be the only complete Mars outfit in existence.

**The two pistols** illustrated above are in the collection of the Imperial Chemical Industries, Ltd., in Birmingham.



**This pistol**, owned by R. Alexander Montgomery of Philadelphia, is 11½ overall with an 8¾ bbl. It weighs 52½ ozs. with empty magazine. The top of the barrel rib is marked MARS PISTOL 0 “450, and 93/646 is scratched upside-down on the receiver. There are several other numbers on this weapon: 195 on the right side, forward of the right hand cocking knob; 19 on the right, forward of the hammer pin; 79 on the bottom of the butt, forward of the magazine, and 8 on the magazine itself.



Left — Mars cartridges in the H. P.White Co. collection: left to right — 8.5mm, 9mm, 450 Long and 45 Short.

The D.G.O., on March 20, 1901, forwarded Mr. Fairfax's letter to the Committee and requested that they make a recommendation with reference to his proposal.

On March 25, 1901, the Committee met to discuss the Mars firing trial, which had been held at Enfield Lock the preceding week. The minutes of this meeting follow:

*Minute No. 427/25.3.1901 W.O. Paper 84/H/3502 Subject 119/6. Automatic Pistols "MARS" Previous Minute 416/11.3.1901*

Supt. R.S.A.F. 16.3.1901, reported as follows on firing trial of above pistol:

"Mr. Fairfax and Col. Johnstone came here on the 12th instant, and tried various experiments with the 'Mars' pistol.

"The pistol, with 7-in. barrel, was fired with a charge of 10 grains cordite (the proper charge of 12 grains could not be obtained in time for the experiment.) Weight of bullet, 155 grains, .35-in. diameter.

a) It penetrated 18½ in. deal boards 1-in. apart, as against the Service Webley of 10 boards. Range, 12½ yards.

b) The enclosed shows the diagram obtained by Mr. Fairfax at 15 yards. No "diagrams" were found with the records.

c) Captain Wallace and myself fired the pistol, which worked well, and with out excessive jar on the wrist.

d) Owing to the charge not being sufficient, there were one or two failures, but fire was immediately resumed by pulling back the breech mechanism.

e) As with all automatic pistols, the mechanism is rather complicated, but still it seems to work well, and appears worthy of a further trial. f) Mr. Fairfax said he was prepared to produce a pistol with a .47-in. bullet, giving a muzzle velocity of 1,000 (f.s.). This, it seems to me, would suit Service requirements as to man-stopping power.”

Following this report, the Committee recommended that two pistols of Fairfax’s design, but with a .45-in. bore, be obtained for further trials.

These were ready for trial in late October. On Nov. 11, 1901, the Committee met, following receipt of the D.G.O. report of the firing trial. The minutes of this meeting follow:

*Minute No. 55¾.11.1901 W.O. Paper 84/F/1770 Subject 119./6. Automatic Pistol “MARS” Previous Minute No. 450/6.5.1901*

D.G.O. forwards W.O. Paper 84/F/1770 containing the following report on the firing trial with the above pistol:

Chief Inspector of Small Arms to Director General of Ordnance, 1 Nov. 1901.

“Mr. Fairfax attended and delivered two ‘Mars’ pistols and 450 rounds .45-bore ammunition. Fifty rounds were fired with out any mishap. The velocity at 90 ft. was 1,137 f.s.; the penetration at 25 yards was 16 to 18½-inch deal boards one inch apart.

“The accuracy at 25 and 100 yards range was good. The pistol handled comfortably, but the recoil was heavy. The weight of the pistol with magazine empty is 3 lbs. 1 oz.; with magazine full, 3 lbs. 9 ozs.

“The pistol was stripped, and required the use of tools to do so. The parts were numerous and complicated, and the pistol would require a good deal of training on the part of the armourers to strip and reassemble.

“Next day I fired 31 rounds. At first round an empty case caught in the mechanism, and at the last round the connecting piece broke, preventing the pistol from firing. The ejection is straight to the rear, and sometimes the empty cartridges strike one in the face.

“The magazines, which are inserted and with drawn through the bottom of the stock, hold eight rimless cartridges, firing 11.57 grains of finely cut cordite and a 216-grain bullet covered with a stout nickel envelope.

“Return of the pistols to Mr. Fairfax to lighten the pull-off and to remedy the defect of the cartridges striking the face on extraction.

“When the pistols are returned by Mr. Fairfax one should be forwarded to C.S.O.F. to be fired to ascertain its man-stopping power in comparison with



the Borchardt pistol, Minute No. 534/7.10.1901, and then sent to Commandant, Hythe, for accuracy trial and report as to the general working of the mechanism.

“The other pistol should be sent to the Captain H.M.S. ‘Excellent’ for trial and report. 100 rounds of ammunition to be supplied for trials at Hythe and H.M.S. ‘Excellent’ and 50 for trials at Woolwich.”

On Nov. 23, 1901, representatives of the press were invited by Mr. Fairfax to witness a demonstration of the Mars pistol. A full report of the demonstration appeared in the Dec, 1901, issue of Arms & Explosives.<sup>1</sup>

“...Apart from the fact of its British origin, the ‘Mars’ has various other features entitling it to favourable criticism. Hitherto there has been a somewhat distinct dividing line between the automatic pistol and the revolver in respect to calibre, the ammunition of the former being, with one exception, of relatively small calibre, and in no way comparable in actually shock-producing effects with the larger, heavier, and slower-moving bullet of the revolver. Reasons for this difference are not far to seek. The tendency of the day towards high velocities and long ranges needs no elaboration or explanation. Therefore, the fact stands that in the leading and successful types of automatic pistol now in use the calibre rarely exceeds .300 in., or the weight of bullet 100 grains, while the muzzle velocity ranges between 1,000 and 1,400 ft. per second, as against the .455 calibre, 265-grain bullet and 700 ft. per second velocity, which are adopted in the Service revolver.

“...the inventor of the ‘Mars’ pistol has turned his energies in the direction of producing a weapon which should combine the shock-producing qualities of the Service arm with the superior ballistics and the more rapid manipulation of the automatic pistol, and it is interesting to notice how the development has been brought about, and how far successfully accomplished. At the present time there are three calibres of the ‘Mars’ in existence, advancing by steady degrees from a minimum of 8.5mm, or .3346 in., to .360 in. and .450 in. It will be noted that even the smallest calibre is larger than the average of the other automatic pistols... The largest calibre is approximately that of the British Service revolver, but the ballistic qualities of the two arms are of a very widely-removed character.

“...the cartridge for the .450 calibre ‘Mars’ pistol is of distinctly up-to-date design, weighing approximately 363 grs., of which the empty shell contributes 130 grs. The nickel-coated bullet is of 220 grs. weight, and is

propelled by from 12 to 14 grs. of cordite, the latter amount only having been quite recently adopted. This cartridge gives a muzzle velocity of about 1,250 ft. per second, corresponding to an energy of about 760 ft.-lbs. In other words, it gives a muzzle energy practically 2? rds greater than that obtained with the Service ammunition. Superior relative results are also obtained from the smaller calibres, the 8½ mm pistol with its 140-gr. bullet and 1,750 ft. per second velocity, showing a muzzle energy of 950 ft.-lbs., and the .360 calibre, with a bullet weighing 160 grs., and a muzzle velocity of about 1,640 ft. per second, developing about 960 ft.-lbs. of energy. The ammunition...is supplied by Messrs. Eley Bros., Ltd....By the way, the 8½mm and .360 cartridges are of the bottle-neck pattern, while that of the .450 calibre is straight-tapered, all being provided with a rim groove. Each calibre of bullet has two cannelures, and the inventor of the 'Mars' pistol may take some credit to himself for the neat and practical design of his ammunition. There is no projecting shoulder where the cartridge case ends, but the metal is bevelled off and then compressed all round into the top cannelure of the bullet, thus making a very efficient junction of the two components of the complete cartridge.

"...Unfortunately, Mr. Gabbet-Fairfax was not able to give extended displays of the rapidity of fire possible with his pistol, owing to the fact that he had not received the expected supply of ammunition, and had very few cartridges available. But he was able to demonstrate the ease and rapidity of working of all calibres of the 'Mars' up to the full extent to which speed of fire would be desirable, in so far as it would be possible to take aim in shooting. And beyond that, he was able to give a very practical trial of the ballistic qualities of his pistol, as compared with others, by means of a series of tests for penetration:

Pistol	Calibre	Weight of Bullet	Charge of Powder	Muzzle Velocity	Penetra- tion of 1 in. Deal Boards
	ins.	grs.	grs.	ft. per sec.	No.
Colt Revolver	.455	265	18	700	6
Colt Automatic	.360	105	7.8	1,260	8½
Mauser	.300	85	7.75	1,400	10
Mars	.450	220	12	1,250	10½
"	.450	220	12	1,250	11
"	.360	160	12	1,640	12
" (8½ mm.)	.334	140	10	1,750	16½

**To indicate** the capacities of the pistol for long-range shooting, the inventor showed one of .360 calibre fitted with a 12 in. barrel and a neat detachable stock for firing from the shoulder, but it was impossible at that time and under the circumstances to make a detailed trial. Even under disadvantages, however, it was seen that the pistol could make fair practice at over 100 yards...”

Although all three Mars calibers were demonstrated at this public exhibition, the main pistol used was of 360 caliber, with a 10-shot magazine. Barrel length, from muzzle to breechblock was 8.7 in., or to the back of the latter, 9.5 in. Overall length of the pistol was 11.5 in., its weight 2 lbs. 10 ozs.



(LEFT) **This pistol** is marked .450 MARS PISTOL on top of the barrel rib. 11¾ overall with an 8¾ bbl., it weighs 50 ozs. with empty magazine. 53 appears on the front base of the butt and on the base of the magazine. Photograph courtesy Sidney Aberman.



(Right) **This pistol**, from the Pattern Room of the Royal Small Arms Factory at Enfield Lock, is marked on top of the barrel THE MARS PISTOL.450. 11½ overall with a 9½ bbl., weight with an empty 8-round magazine is 50 ozs. Serial No. 52. The magazine shows clearly that the cartridges must be extracted rearward, instead of in the conventional manner of being pushed forward.

On 28 Apr., 1902, the Committee again met to discuss further trials of the Mars pistols and make recommendations. The minutes of this meeting were as follows: *Minute No. 615/28.4.1902 W.O. Paper 84/F/1805 Subject Further Trials of "MARS" Pistols of .36-inch and .45-inch Calibres Previous Minute No. 603 III./17.3.1902*

D.G.O., 25.4.1902, forwards W.O. Paper 84/F/1805 containing the following report on pistols as above. The inventor states that one of the .45-inch pistols submitted is of an improved type; the other is one of those previously tried, but converted to the pattern of the former.

Chief Inspector of Small Arms to Director-General of Ordnance, 24 Apr. 1902.

"A representative on the 21st instant brought down a .45 and a .36 inch 'Mars' pistol, which were stated to have had the mechanism altered and simplified. They were first fired for velocity:

.36-inch gave 1,470 f.s., 90 feet from the muzzle.

.45-inch gave 1,142 f.s., 90 feet from the muzzle.

“When fired to test the penetration, the .36-inch at 25 yards’ range perforated the entire apparatus used for testing, viz., 22½-inch planks 1 inch apart, and the back of the box 1 inch thick. It was fired again with bullets with special thin envelopes. One bullet passed through 17 and one through 20½-inch planks. The bullets have the points flattened. Samples forwarded.

“The .45-inch at 25 yards’ range perforated 18 and 19½-inch planks set 1 inch apart. Bullets forwarded.

“The pistols were fired for accuracy, and to compare the recoil with a Webley pistol. The accuracy was decidedly good (see diagrams), No “diagrams” were found with the records. but the recoil was much heavier than with the Webley, and the pull-off was heavy and rather grating. The certainty of action was not very good, for with the .36-inch there were three cases of insufficient recoil and two miss-fires; the latter were partly accounted for by deep-set caps.

“With the .45-inch there were two miss-fires; which exploded on second trial.

“Fine sand was then blown over the pistols; the .36-inch in eight rounds missed fire twice, and twice the breech had to be closed by hand.

“Total rounds fired:

.36-inch, 34 rounds — .45-inch, 44 rounds

“The .36-inch bore ‘Mars’ pistol will be sent to Superintendent, R.L.6, as soon as the makers send a further supply of ammunition.

“The recoil of these pistols is very severe. Mr. Fairfax should be asked whether he could alter the .45-inch pistol so as to give a velocity not greater than 1,000 f.s., and as much less down to 800 as he could arrange for. Also whether an uncoated hard lead bullet, similar to the Webley Mark II. bullet, or a bullet of a softer character than those recently tried, could be supplied for use with this pistol.”

In Oct., 1902, the Mars Automatic Pistol Syndicate, Ltd., issued their first and only catalog, from 29/35 White-house St., Aston, Birmingham. In it were listed pistols of the 1901 model, available in calibers 8.5mm, 360, and 450 Long. The following data, taken from the catalog, compare these three calibers with three other handguns of similar calibers:

In Oct., 1902, the trial aboard the “Excellent,” which had been discussed at the Nov., 1901, meeting of the Committee, finally took place. Following this trial-the Committee met on 8 Dec, 1902, when the following minutes were recorded:

*Minute No. 69? 12.1902 W.O. Paper 84/F/1821*

*Subject Report on Firing Trials by Captain, H.M.S. "Excellent"*

*Previous Minute No. 635 11½ 3.6 1902*

D.G.O., 22.11.1902, forwarded the following for consideration and report, and notified that the inventor would attend the meeting to explain the working of the pistol. Mr. Fairfax attended.

Director of Naval Ordnance to Director-General of Ordnance, 23 Oct., 1902.

"Please see following report of Captain of 'Excellent,' with which I concur. The results confirm those obtained at the previous trial of this pistol at Whale Island.<sup>7</sup>

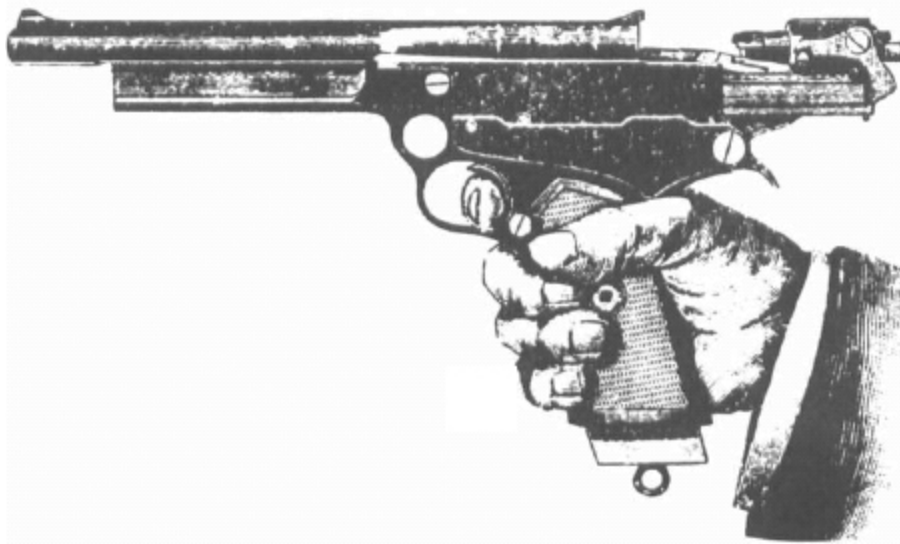
"Sample cartridges received with 'Excellent's' report are forwarded.

Captain, H.M.S. "Excellent," 20 Oct., 1902:

"Extended further trial has now been carried out. 'Mars' pistol and 500 rounds of ammunition were received 27.9.1902 (a); another 500 rounds of ammunition were received 13.10.1902 (b); 122 rounds of (a) and 18 rounds of (b) have been fired by five officers and four men.

"The pistol has jammed several times, the last time necessitating stripping before it could be made safe. The cause of this jam was apparently the canting of the cartridges in the magazine. The ammunition has been improved since former trial; there were no miss-fires due to ammunition.

Pistol	Caliber	Bullet weight, grs.	Powder charge, grs.	Muzzle vel., fps	Muzzle energy, ft. lbs.
Colt Revolver	455	265	18	700	287
Colt Automatic	360	105	7.8	1,260	364
Mauser	300	85	7.75	1,400	379
Mars	450	220	12	1,250	760
"	360	160	12	1,640	969
" (8½ mm)	335	140	10	1,750	950



The Mars Model 1901.

“On two occasions the last cartridge in the magazine was telescoped (samples forwarded).

“No one who fired once with the pistol wished to shoot with it again; several of those who fired are good shots and in the ‘Excellent’s’ pistol team.

“Further trial I consider quite unnecessary. Its disadvantages are as follows:

1. Liability to jam.
2. Weight.
3. Unwieldy shape.
4. Difficult to hold steady. The handle being between the sights, any shakiness of the hand becomes amplified.
5. The fired cartridges constantly strike the firer in the face.
6. Mechanism complicated and would, in the hands of men not thoroughly acquainted with it, be a dangerous weapon.

Opinion.

“That this pistol is quite unsuitable for adoption in Navy.

“Mr. Fairfax called at the War Office on 4 Nov., 1902 and explained the many difficulties in preparing a satisfactory design of automatic pistol to fire a heavy bullet, and that it would be of great assistance to him if trials might be made in the presence of a representative.

“D.N.O., 13.11.1902, did not think any further trials in the presence of Mr. Fairfax’s representative were necessary in view of Captain of

‘Excellent’s’ reports.

“The Committee defer consideration of this question pending receipt of report of trials at Hythe, and of replies from the makers of the Borchardt, Roth, Bergmann, Browning Andrews, and Colt pistols, as to whether they can supply a pistol with a calibre of not less than .4-inch, and firing a bullet of a weight not less than 200 grains.”

Apparently the reports from the trials at Hythe were not encouraging, for the Committee did not immediately recommend the ordering of any Mars pistols.

On Feb. 2, 1903, the Committee again met to consider some letters received from Fairfax concerning reimbursement for expenses incurred in developing the Mars, and requesting permission to give another exhibition of the pistol’s abilities. In the minutes of this meeting, no recommendation was made of reimbursing him.

Minute No. 719/2.2.1903 W.O. Paper 84/F/1856

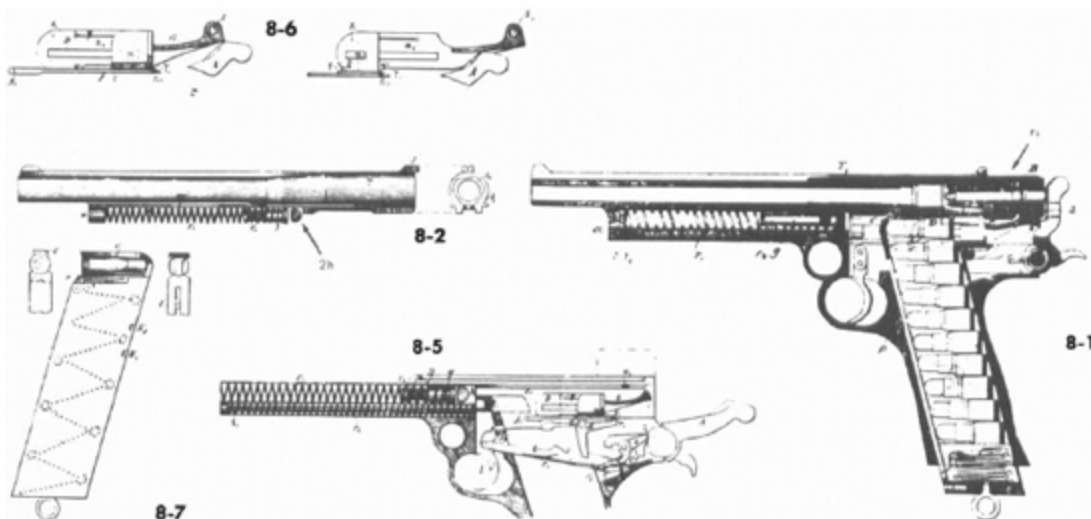
Subject: 119.6. “Mars”

Previous Minute No. 707v./12.1.1903

D.G.O., 23.1.1903, forwarded the following letters and asked for a report on the pistols:

Mr. Gabbett-Fairfax to Director-General of Ordnance, 20th Jan. 1903.

“I have the honour to submit to you that the cost of experiments necessary to the production of the ‘Mars’ pistols, calibre .450-inch, recently supplied to H.M.’s War Department, and of the ammunition therefore, amounts to over £2000. It appears that the objection to this model is that it is too powerful, giving too great a shock to the hand.





**Sectionalized views** of the 1900 and 1901 models. Note that the cartridges have friction crimps, and the magazine spring is of the leaf type, instead of the coil spring used in the 1906 models.

“I now have the honour to advise you that, while I am anxious to provide an arm which shall in all respects conform to the requirements of your Department, I cannot undertake further experiments to that end at my personal expense. I would therefore suggest, sir, that a grant of £1000 be made to me from the Public Funds for the production of a pistol to conform to your specification.”

Mr. Gabbett-Fairfax to Director-General of Ordnance, 27th Jan. 1903.

“Referring to previous correspondence with your Department on the subject of ‘Mars’ automatic pistol, I would respectfully suggest that I be permitted to give an exhibition of the shooting of the ‘Mars’ pistols furnished to your Department at such time and place as you may appoint.

“In order that I may be enabled to make a pistol which would completely satisfy and conform to all requirements of your Department, I would ask that I should be supplied with a complete written statement setting forth the results of the various trials and stating clearly in what respects the pistol is considered unsatisfactory.

“I feel confident that due consideration will be paid to the fact that, in bringing the pistol to its present perfected form, I have incurred the expenditure of a large sum of money; and, therefore, in the event of further modifications being considered necessary by your Department, I would ask that such a sum be granted to me as will, in my opinion, be required to carry out such modifications.

“If an arrangement of this kind could be made, there appears to me to be no difficulty in producing a pistol which would meet with your requirement.

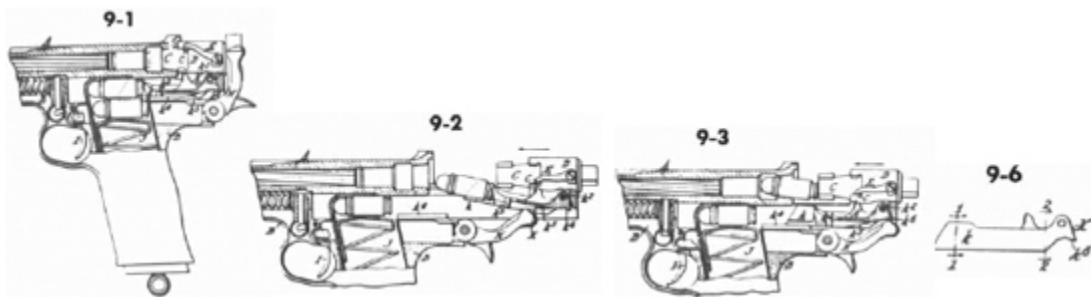
“The Committee recommend that Mr. Gabbett-Fairfax be asked if he could give an exhibition of shooting in London, and if so, when he would be ready. If the 16th February be convenient some members of the Committee would probably attend.”

Whether the 16 February trial, or other trials, ever took place is not known, as all War Office files (except an old correspondence register) on the subject were destroyed. According to the register a file was opened on 19 June, 1903, on the subject “Mars Automatic Patents transferred to Mr.

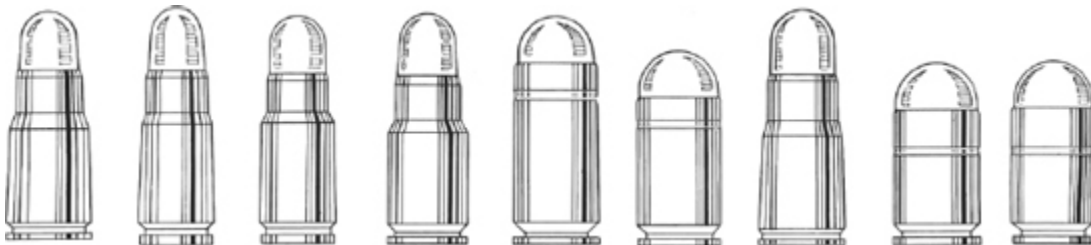
Sanders and Mr. Cartland,” and on 22 June, 1903, the interest of the War Office in the Mars pistol ceased to exist.

Disaster faced Gabbett-Fairfax. Although he held patents for such items as engines, power-transmission mechanisms, etc., profits from these inventions apparently weren't enough to cover losses on the Mars. In the Oct., 1903, issue of Arms & Explosives, under the heading “Round the Trade,” the following note appeared:

“The usual bankruptcy notice has been issued with reference to the affairs of Mr. H. W. Gabbett-Fairfax. The cause of failure is attributed to delays incidental to obtaining order of assurance from H. M. War Department, leading to the seizure of the patents by the mortgagees. The statement of affairs seem to show that the debtor mainly carried on his experiments with the aid of borrowed money, and no practical results were forthcoming. The losses incurred are mainly attributed to the difference between the amount at which the patents were formerly valued and the sum for which they were mortgaged.”



**Sectionalized views** (here and below) of the 1906 model. It differs from earlier models in numerous ways, but the most prominent change is in the size and location of the hole above the trigger guard. Note the deep cannelures on the 450 cartridges.



**The complete line** of Mars cartridges. Left to right: 360, the first known Mars caliber; 8.5mm early type; 8.5mm late type; 9mm 450 Long; 472; 10mm; 450 Short, early type; 450 Short, late type. All cases are drawn to

scale, using dimensions taken from actual cartridges, with two exceptions — the 472 and 10mm. Samples of the last two have been unobtainable, so the drawings represent only the author's conception on what they may have looked like. For ease in comparing, all cartridges have been given the same type of rim, though the actual rims were more like fig. 10. The larger calibers have been given one type of crimp, while the smaller calibers have been given another type, only two of the many variant forms of crimps used on Mars cartridges.

Following seizure of the patents the Mars Automatic Pistol Syndicate, aided by Clement Brown, the former associate of Fairfax, continued work on the Mars, possibly hopeful still of interesting the British and French governments. Although a rumor has long existed that French trials of the Mars were held, only recently was the author able to verify this.<sup>8</sup>

On Dec. 9, 1905, the Mars Syndicate, then of 37 Newhall St., Birmingham, and Clement Brown, Engineer, of 154 Trinity Road, Aston, Birmingham, applied for a patent on an improved version of the 1900 model. This improved model was manufactured by various small Birmingham gunmakers and placed on the commercial market in 1906. It never became a sales success and by the end of 1907 it was no longer being made. The few pistols remaining on hand were disposed of through small dealers. Thus, within a decade, the "world's most powerful handgun" hit the limelight and passed into oblivion.

### **The Mars Pistols**

It is extremely difficult to give the Mars pistols model designations, because of the variant forms and the lack of designation on actual weapons. The author has, therefore, attempted to classify them by comparing actual weapons with dated patent specifications and photographs. While the possibility of other versions cannot be overlooked, there appear to have been three main types — the Models 1900, 1901, and 1906. Figs. 3 (lower), 4, 5, and 8-1, are of the Model 1900. Figs. 3 (upper), and 8-5, are of the Model 1901. Fig. 6 is of the Model 1906.

The basic action of the Mars pistol is one of the strongest and most peculiar designs ever applied to a self-loading handgun. Peculiar, not so much for its unusual method of locking as in its method of feeding. The normal feed-system in a self-loading handgun is for the breechblock, as it moves forward, to shove a cartridge up out of the magazine into the

chamber. In the Mars the manner of feeding is entirely different. As the breechblock recoils backward, two fingers below the bolt proper with draw a cartridge backwards from the magazine. Then the cartridge is tilted upward at an angle of about 30°, the empty case is ejected, and eventually chambering takes place.

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<sup>1</sup> Webley 1790–1953, by C.W.T. Craig and E. G. Bewley, F.C.I.S., Webley & Scott Ltd., Birmingham 4, England, p. 25.

<sup>2</sup>W. J. Whiting served as the mechanical brains to Fairfax, while the Mars was under development at Webley. Later, when Fairfax elected to continue on his own, Whiting designed the first of a series of Webley automatic pistols, beginning in 1903 with an experimental model chambered for the 455 cartridge.

<sup>3</sup>Fairfax intended to make, at a later date, automatic rifles and shotguns, but none were ever produced.

<sup>4</sup>Royal Small Arms Factory.

<sup>5</sup>The ‘Mars’ Automatic Pistol.” *Arms & Explosives*, 1, Arundel St., Strand, London, W.C., Vol. IX, pp. 190–192.

<sup>6</sup>Royal Laboratory, Woolwich.

<sup>7</sup>Whale Island is of nearly 90 acres, on the east side of Portsmouth Harbor. This island forms the great Naval Gunnery School. Those in charge of this school are, in the quaint phraseology of the Navy, said to be commissioned to H.M.S. “Excellent,” which has no floating properties, and is merely an alias for Whale Island.

<sup>8</sup>The following letter (one of five discovered) has been translated from the French original, and probably refers to an 8.5mm caliber pistol. No report of the actual trial has been located.

The other four letters concern the importation of 2000 rounds of Mars ammunition, possibly of 450 caliber.

Archives de 1 Artillerie

13 Sept. 1901

Monsieur Gabbett, who is the manufacturer of the pistol sent by Mr. Guinard (8, avenue de Opera), came on the 13th at 11:30, accompanied by the latter, and was astonished that we have had functioning difficulties with the weapon. He attributed it to a defective lot of cartridges (weak rim), but has not had any difficulties elsewhere. He would like to return with another weapon of larger caliber, which he would shoot before the service officers. He could return after the 25th, depending on the advice of Mr. Guinard, who will accept the date chosen by Col. Pralin. These gentlemen have refused to consider for the time being the weapon sent. Signed: V. Leleu

<sup>9</sup>Complicated action design made the Mars pistol extremely expensive to manufacture, since much detailed machining was necessary. Too, all observed models, with the exception of the inventor’s model, have been very well finished, which did not lessen the cost. Just how many Mars pistols were manufactured is not known; probably less than 100, including all variant forms.

<sup>10</sup>1906 models have four tapered locking lugs spaced 90° apart around the bolt-head. 1900 and 1901 models have three tapered locking lugs spaced 120° apart, which rotate approximately 75° to unlock. In all three models the extractor is close beside the topmost lug.

In the 1906 model the loading tray was redesigned for improved efficiency — see fig. 8-6 for the 1900 and 1901 loading tray, and fig. 9-6 for the 1906 loading tray.

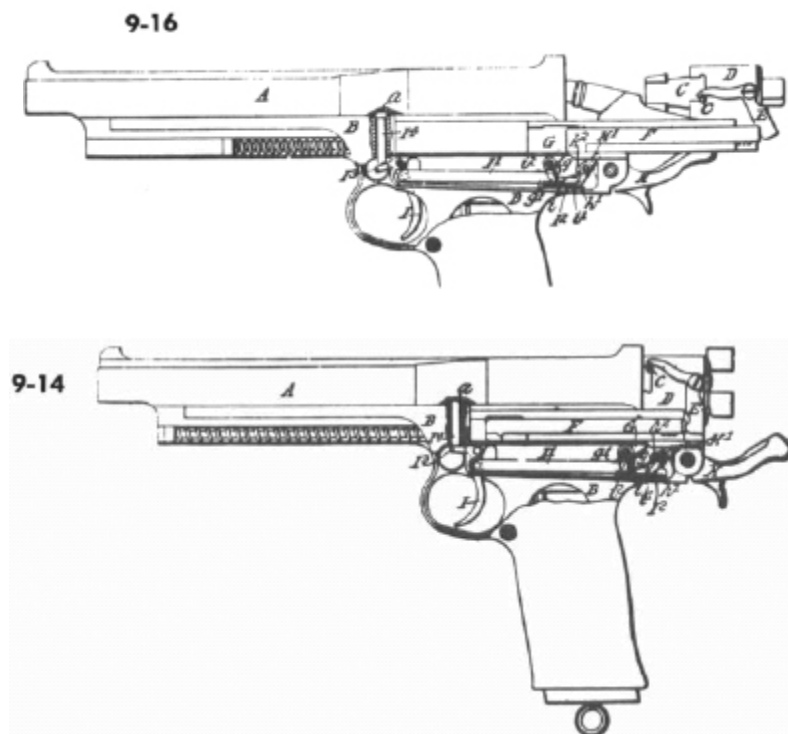
Magazines carry from 8 to 11 cartridges, depending on caliber, and are held in place by the stop P (fig. 8-1). Note in fig. 8-7, and also in fig. 6, that the magazine has two retaining notches, K1 and K2,

in which the stop P will catch. When the magazine is caught in the K1 position the pistol is ready for magazine fire; when in the K2 position only one shot at a time can be fired, with the weapon being reloaded manually for each succeeding shot.

<sup>11</sup>All models have a heavy recoil spring located beneath the barrel, with smaller breechblock return springs located on each side and slightly below. A buffer-spring assembly is contained at the rear of the recoil spring. The large pin, seen above the forward part of the trigger guard just below the barrel in all photographs, and in fig. 8-2h, keeps the buffer assembly from moving farther, and takes up part of the shock.

<sup>12</sup>When firing the Mars it was natural to grip it very tightly. The barrel would have then returned to its forward position before the trigger was released, allowing the breechblock to move forward. Only by strict concentration, could the trigger be released before the barrel was in battery. To prevent any such premature movement of the breechblock, due to the release of the trigger, the 1906 model incorporated a lock consisting of a recess in the barrel (fig. 9-16a), a vertical pin I4, and an arm on the trigger I3. If the barrel is in its forward position, the pin rises into the recess and allows the trigger to return to its normal position. If, however, the barrel is not fully forward, the pin cannot rise in the recess. Thus, even though the finger pressure has been released, the trigger cannot return to its normal position and release the breechblock.

<sup>13</sup>An interesting comment appeared in the U.S. Naval Intelligence's 1902 report, "Information from Abroad, Notes on Naval Progress," to the effect that a Mars pistol, 18 inches long, with correct sight, fired from a rest, would keep all its shots on a 4-foot square target at 1000 yards.



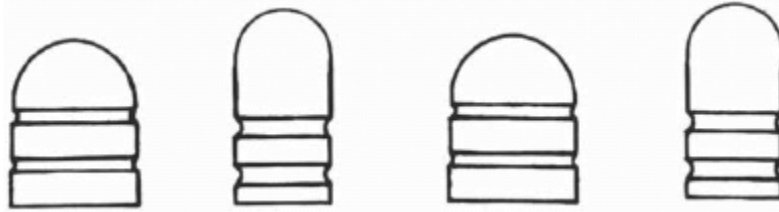
A simplified version of the sequence of action of the M1906<sup>10</sup> Mars pistol is as follows:

Fig. 9-14 shows the pistol with a cartridge in the chamber and the hammer cocked, ready to fire. In fig. 9-1, the hammer has fallen and the cartridge discharged. Barrel and breechblock now recoil backward a full 3 inches, compressing the heavy recoil spring and the two lighter breechblock return springs.” At this same time the loading tray is pulling a cartridge backward out of the magazine (note opening back of magazine in fig. 9-2). When the barrel and breechblock have reached the full limit of recoil, still locked together, they begin to move forward under the impulse of the three compressed springs. After about one-fourth inch of forward movement a small wedge in the frame causes the actuating bar F (fig. 9-16), to strike the end of the bell-crank lever E, causing it to revolve and rotate the pin C (an integral part of the bolt-head) 45°, unlocking the barrel; the barrel then continues to move forward.

The extractor, near the top lug of the bolt-head, holds the fired case, which is ejected upward by the pressure of the loading tray below; the loading tray having been forced upward by the pressure of the hammer below it (fig. 9-2).

At this point, in all models, no further movement takes place until the finger pressure on the trigger is released (fig. 7), upon which the breechblock moves forward (fig. 9-2). The loading tray releases the fresh cartridge into the path of the moving breechblock, which slams it into the chamber. At the same instant, a strong spring under tension inside the breech-block (fig. 8-r5) is released, causing the bolt lugs to rotate to the right, locking the action closed. As the breechblock moves forward the hammer strikes the tip of the loading tray (k<sup>6</sup>, fig. 9-3), camming it back into place under the barrel, ready to pick up another cartridge.

By following this sequence of action, the reader can see that the Mars pistols did not automatically fire, eject the empty case, and chamber a fresh cartridge, for each pull of the trigger in the usual manner. Instead, pulling the trigger only fired the cartridge and ejected the empty case. Then everything stopped.<sup>12</sup> Only after the trigger was released was the fresh cartridge chambered.



**45 and 9mm Mars bullets**, showing the two crimping cannelures. Full jacketed in cupronickel, the round-nose shape was apparently adopted to gain maximum bullet weight with minimum bullet length, and maximum stopping power with a bullet which would still function through the action.

Judging from the comments made by individuals firing the various caliber Mars pistols, during the government trials and afterward, they were not the most pleasant weapons to shoot. The pistols, even with long barrels, were well balanced statically, because most of the weight was above the grip, but when the hammer was cocked and the trigger squeezed, things began to happen. The center of gravity suddenly and violently shifted 3 inches to the rear, causing the pistol to literally stand on its tail. This was most alarming when firing the .450 Mars Long cartridge. Even some of the most seasoned shooters were willing to stop after firing a couple of rounds. In the small calibers, however, it was found that with sufficient practice reasonably accurate shooting could be done.<sup>13</sup>

Today, the scarcity of the pistols, coupled with the unusual design, has made the Mars a most desirable collectors item, causing it to be ranked among automatic pistols as the Colt Walker is in the revolver field.

### **Mars Ammunition**

The Mars cartridges were first made by a small brass-working firm in Birmingham, whose name is now lost, but which might have been the predecessor of the Birmingham Metal and Munitions Company, Ltd., or King's Norton Metal Company, Ltd., both of these companies being cartridge manufacturers a few years later. The first quantity lot of Mars cartridges was made by F. Joyce and Co., Ltd., Waltham Abbey, Essex. This company, well-known then as cartridge manufacturers, was taken over (in part) in 1903, and finally entirely, by Nobel's Explosives Company, Ltd. Possibly Joyce and Co. also did some of the earlier work on Mars cartridges.

From about late 1898 to 1901 Mars cartridges were made by Kynoch, Ltd., at their Witton factory. The first recorded firing of Mars ammunition by Kynoch was in March 1899, using the 450 Mars Long cartridge.

Following Kynoch came Eley Brothers, Ltd., London, who were, at this time, manufacturing over 400 different varieties of cartridges at their Edmonton factory.

There are literally hundreds of variant forms of the Mars cartridges — some headstamped with the maker's name and caliber, some with the caliber only, some unmarked — depending on how the Mars pistols were performing and who was manufacturing the cartridges. Early cartridges were made with crimped bullets and sometimes a reeded cannelure, with deep set copper Berdan primers. Later, the cartridges were made with one deep cannelure, then with two deep cannelures in the larger calibers, and with flush primers. The cannelure also changed — see fig. 10. The cartridges were never adapted to any weapons other than Mars pistols.

The Mars bullets have cupronickel jackets with hemispherical noses. With one known exception — a 360 Mars cartridge headstamped Eley, with 160-gr. hollow point bullet — all bullets are of the full patch or solid variety. The hard lead bullets asked for by the British government were apparently never manufactured. At least no records exist of such bullets, nor does the author know of any Mars cartridges containing unjacketed lead bullets.

Some of the variant forms of Mars cartridges are listed below. Where recorded velocities are shown, the reader must bear in mind that, with the exception of Col. Wilson, who did his own testing, the figures quoted are from old records, and that the velocities were obtained under varying conditions. In general the powders used were of two types, pistol Cordite (a cord form) and flake Cordite. Just what Webley Cordite was is not known. Beginning sometime in 1902, all Mars cartridges were loaded with a "Special Mars Powder," made by Nobel Explosives Co., Ltd. This may have been another name for the Ballistite flake powder — the first nitroglycerine smokeless powder invented by Nobel — listed as being used in the 450 Mars Short cartridge.



Caliber	Bullet weight, grs.	Powder weight, grs.	Powder type	Muzzle Vel. f.s.	Source
8.5mm	140	11.5	P. Cord.	1550*	Kynoch
8.5mm	139			1660†	Pollard
8.5mm	139	10.0	" "	1748†	Pollard
9mm	154	10.0	F Cord.		
9mm	155	12.5	P. Cord.		
9mm	156	12.0	" "	1400*	Kynoch
9mm	156	12.5	" "	1600†	Wilson
9mm	158			1650†	Pollard
360	155	10.0	F. Cord.	1470**	Bady
450 Long	216	11.57	" "	1140**	Bady
450 Long	219			1211†	Pollard
450 Long	220	8.0	Web. Cord.	753***	Bady
450 Long	220	9.0	" "	833***	Bady
450 Long	220	10.0	" "	957***	Bady
450 Long	220	11.0	P. Cord.	1200†	Kynoch
450 Long	220	12.25	F. Cord.		
450 Long	222	12.5	P. Cord.	1222†	Wilson
450 Long	250	10.0	F. Cord.		
450 Long	220	11.4	Nobel		
450 Short	220	9.0	"		
450 Short	220	9.5	P. Cord.		
450 Short	220	9.5	Ballis.		
450 Short	220	9.5	Nobel		

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## Notes and References

The American Rifleman, Apr. 1956.

R. K. Wilson, Textbook of Automatic Pistols, Plantersville, S. C., 1943.

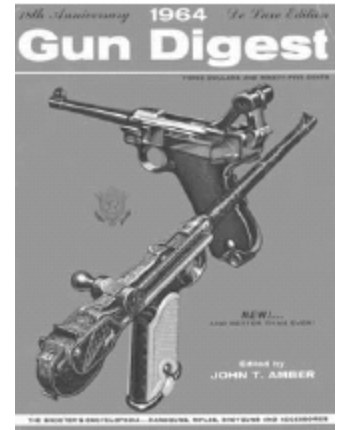
The Gun Collector, No. 24, Sept. 1948.

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The author would like to thank the following people and organizations for their help in making this story possible: Eric Bewley of Webley & Scott, Ltd.; Keith Dunham of the Birmingham City Museum; R. L. Lees of the Birmingham Proof House; the British War Office Records Centre; Col. Watts of the Royal Small Arms Factory; Col. H. du Lattay and the bureau "Armements et Etudes;" Imperial Chemical Industries, Ltd.; Mr. Donald Bady; R. Alexander Montgomery; Sidney Aberman; Fred Mullet.

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1964



## Military Handguns for Sporting Use

■ Frank C. Barnes

LARGE quantities of surplus military handguns have been imported and sold on the American market, usually at low prices compared to new sporting or self-defense weapons. Many purchasers know little about such pistols or revolvers and even less about the cartridges they fire. Acquisition is motivated almost entirely by the low cost. Some of these guns are old, obsolete models of value only as conversation or collection pieces. However, the majority are relatively modern and in good shooting condition, having been retired only because of change in caliber or type. Western European military establishments have standardized on the 9mm Parabellum (Luger) cartridge and various semi-auto pistols. This has released older models as surplus and eventually most of them show up here; due in part to the fact the United States is the only country in the world where large scale ownership of handguns by the civilian population is permitted. It is also one of the few places where handguns are popular for all phases of sporting use, including big game hunting. In fact, handgun hunting has emerged as one of our major

gunsports, a development increasing at a rapid pace. For this reason, the adaptability of military side arms to field use is of interest to a large and growing segment of the shooting fraternity. As with most other things, the value and usefulness of a military handgun depends to a large extent on the buyer and what he intends to use it for.

Before discussing the individual weapons and cartridges, it might be well to establish something as to the general performance required of a sporting handgun. In reading through literature on the subject, one gets the impression American handgunners are involved in a continuous series of gun fights and grizzly bear hunts. Gun writers appear heavily preoccupied with the man-stopping, bear-killing potential of such weapons. The author's grandfather, father and two uncles are retired police officers and not one of them ever had a shoot-out of any kind, even in 25 or more years of service. The truth is that 98% of all pistol shooting is against inanimate objects such as cans, bottles and targets, or small game and varmint type animals. Only a mere handful of big game animals are killed each year with the handgun and most of these are deer. It is necessary to mention this because the weapon and cartridge required to incapacitate an armed assailant or down a bear is vastly different from what is needed for ordinary handgun shooting. Another fallacy is the idea that most handgun hunting is at ranges of 100 yards and beyond. In reality, the average range is not over 25 yards or so and 50 yards taxes the ability of all but a few experts. We are referring here to the potential of the usual iron sights. The new scope sights will extend this somewhat. Military handguns are condemned almost solely on the grounds they are unreliable against armed men or bears (armed or unarmed) and lack the accuracy to hit small targets 200–300 yards away. This may be true, but it's of little concern to the average user. For plinking or shooting small animals within practical ranges, very few handguns are completely inadequate.



**Smith & Wesson Model 1917** U. S. Army revolver, cal. 45 ACP. Lahti M-40 auto pistol, cal. 9mm, once the official Swedish sidearm.

To keep the record straight, it would be ridiculous to claim surplus military handguns are superior, or even equal, to modern magnum pistols for field use. Magnum handguns were designed specifically for sporting purposes, and nothing else is quite as good. No military handgun, regardless of caliber, can be considered fully adequate for big game. However, most military weapons can be adapted to at least limited sporting use by one method or another. We'll discuss here how to do just that, plus outlining the physical characteristics of individual models and cartridges. Most arms likely to be encountered in surplus military stores are covered, but information of special or historical interest has also been included.

### **Early Handguns**

As a practical military weapon, the pistol was introduced sometime in the mid-14th century. By 1500 they were well known, but in limited use, mostly by mounted troops. Evolution closely paralleled shoulder arms through the matchlock, wheel-lock, flintlock and percussion periods. Pistols apparently didn't come into popular use in America until about the time of the Revolutionary War. Old records indicate that "the shot heard round the world" at Lexington in 1775 may have been fired from a pistol. Almost the minute the United States began its westward expansion, the handgun became a popular auxiliary weapon. Samuel Colt patented the first

successful commercial revolver in 1835–36, and a few of the early Paterson-made models were used on the western frontier. There they established a reputation that dispelled all doubts as to the efficacy of a multifiring weapon. The exploits of the Texas Rangers and the U.S. Army during and after the Mexican War established the revolver as a military weapon. It became the principal side arm of our own and other military establishments until the automatic pistol was successfully developed between 1893 and 1900. At the present time every military power has officially adopted the automatic pistol. However, large stocks of revolvers are held in reserve by some countries and would see service in any major conflict.

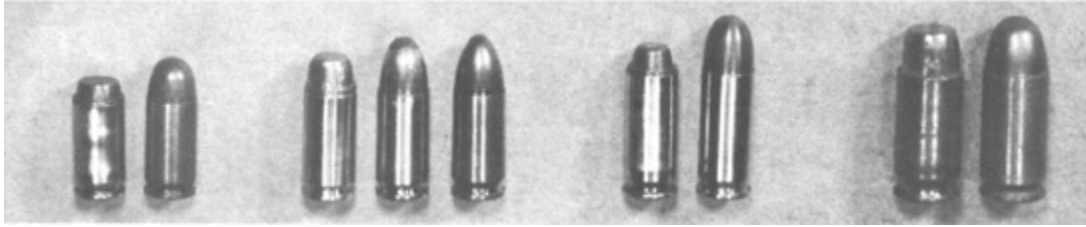
### **Weapons**

The United States has adopted a larger variety of military handguns and cartridges than you might think. Beginning about 1860, the metallic cartridge was developed here, the rimfires evolving into the centerfire cartridge as we now know it about 1870. In 1867 the navy adopted the 50 cal. Remington single shot pistol and cartridge, and in 1871 the army adopted a slightly different version of the same. This pistol was based on the famous Rider rolling block design. From 1870 the army used a quantity of Smith & Wesson American revolvers and the outside lubricated 44 S&W American CF cartridge. In 1873 the first Colt Single Action Army revolvers in 45 Colt caliber were ordered, and this model continued in service until 1892. The 45 Smith & Wesson Schofield, single action, hinged frame revolver was adopted for alternate use in 1875. The cylinder of the S&W revolver, too short for the 45 Colt cartridge, used a shorter version called the 45 S&W. After 1875 the government loaded the 45 S&W cartridge exclusively as it could be fired in either make revolver. In 1892 the army adopted the double action, swing out cylinder Colt Army & Navy revolver and the 38 Colt Long cartridge. A few S&W Military & Police revolvers in this caliber were used also. The 38 Long proved so unsatisfactory in combat it was replaced from 1909 to 1911 by the Colt New Service revolver; the cartridge used was the 1909 type 45 Colt, identical to the original 45 Colt except for a wider rim. In 1911 we adopted the Browning-designed autoloading pistol, using a new, shorter and rimless 45 caliber cartridge which, with minor modifications, is still in use. During the First World War the army used the Model 1917 Colt and Smith & Wesson revolvers

chambered for the 45 Auto cartridge (45 ACP) via special three-shot, half-moon clips. This was necessary because of the shortage of 45 auto pistols. After the war these revolvers were sold as surplus and the Peters Cartridge Co. introduced a rimmed version of the 45 ACP to eliminate the need for the unhandy clip. These were commonly called the 45 Auto-Rim.



**British 455 Webley** revolver makes a good field weapon in original caliber, or converted to 45 ACP/45 Auto-rim. Handloaded ammo with hunting type bullets is about all one needs to make the transition from military to sporting weapon.



Left to right — Two 380 ACP; three 9mm Luger; two 9mm Steyr, and two 45 ACP.

Until about 1940–42, most obsolete American military handguns were common, but today only a few late models are plentiful. The 38 Long Colt, 45 Colt and 45 ACP are the last of the military rounds commercially loaded. However, there ought to be plenty of 38 Colt DA Army & Navy revolvers around. One of the first centerfire revolvers the author owned was one of these, with surplus ammo plentiful and cheap up to about 1940. After the supply was exhausted I traded it off for a 38 Special, since the cost of commercial ammunition was about the same. Incidentally, you can shoot 38 Longs in any 38 Special revolver, but the reverse is not possible. The 45 Govt. auto pistols and 1917 revolvers are in plentiful supply. These arms are so well-known and so familiar that no discussion is needed here.

The British, rather conservative in the matter of military hardware, clung to the revolver longer than anyone else. They adopted the 455 Webley top break revolver in-1890 and were using virtually the same gun in World War II. In the mid-30's they changed to a smaller, lighter-frame version firing the 380/200 (38 S&W) cartridge. These are well-designed, sturdy and thoroughly reliable arms. Before WW II, Webley pistols were a rare item in the U.S., but tens of thousands of them, sold as surplus, are now widely distributed. A few of the unique 455 Webley-Fosbery automatic revolvers, now a collector's item, have been sold, too. The barrel, cylinder and receiver form a separate unit that slides back and forth in a groove in the frame or handle. The grooved cylinder is rotated by a stud fastened to the frame. The revolver is cocked in a conventional manner for the first shot, after which all the work is accomplished by recoil until the last shot is fired. Of top break design, they're loaded the same as the standard Webley revolver. In 1912 the British navy adopted the Webley auto pistol and a semi-rimmed 455 cartridge that resembles the 45 ACP. They retained the cartridge, but dropped the pistol in favor of the Colt automatic. A small number of these Webley auto pistols have been sold, but too few to merit

serious consideration here. The 455 caliber is not ideal for sporting purposes, but some improvement in performance is possible, as will be discussed further on. Many of the 455 Webley revolvers were converted to shoot the 45 ACP (with clips) or the 45 Auto-Rim. This works quite well and, from the American point of view, makes a more satisfactory field weapon.

#### Standard Ballistics of Military Handgun Cartridges, Modern and Obsolete

Cartridge	Bullet grs.	MV fs	ME fp
7.62mm Russian Nagant	108	1100	294
7.62mm Russian Tokarev	87	1390	365
7.63mm Mannlicher	85	1025	201
*7.63mm Mauser	86	1410	375
*7.65mm Browning (32 ACP)	71	960	145
*7.65mm Luger	93	1220	307
7.65mm Long, French MAS	85	1120	240
7.5mm Swiss, Revolver	102	725	120
7.5mm Norwegian	104	725	121
8mm Roth-Steyr	116	1100	315
8mm Rast-Gasser	124	750	154
8mm Nambu	102	950	209
8mm Lebel, Revolver	120	625	104
*9mm Luger	116	1165	350
9mm Steyr	116	1200	370
9mm Bayard	125	1115	348
*9mm Browning Short (380 ACP)	95	955	192
9mm Browning Long	110	1110	300
9mm Russian Makarov	94	1115	262
*38 Long Colt	150	770	195
*380/200 British	200	630	176
10.35 Italian	177	735	212
10.6 (11)mm German	262	700	288
11mm French	180	795	252
44 S&W Russian	246	770	324
44 S&W American	205	687	212
44 Colt	210	660	206
*45 Colt	255	855	405
45 S&W Schofield	250	710	283
*45 ACP	230	855	405
455 Webley Revolver	265	600	220
455 Webley Auto	224	700	247
50 Remington Army	300	600	240

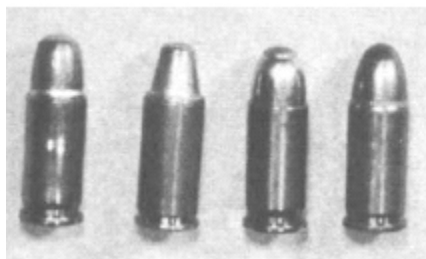
Various other loads are or have been available for most cartridges listed. Those given are the most common.

\* Loaded in U. S. at present time.

#### Standard Loading Data for Military Handgun Cartridges

Cartridge	Bullet grs.	Powder type	Load grs.	Vel. fs	Remarks
7.62mm Nagant	115	No. 5	3.0	800	Lyman 311441 GC
7.62mm Nagant	100	B'eye	3.5	1000	Speer 30 "Plinker"
7.62mm Tokarev	Use same data as for 7.63 Mauser				
7.63mm Mannlicher	77	B'eye	2.2	980	Lyman 311252
7.63mm Mauser	100	B'eye	4.7	1250	Speer 30 "Plinker"
7.63mm Mauser	93	Unique	5.3	1345	Norma 30 Luger SP
7.65mm Luger	100	Unique	4.8	1210	Speer 30 "Plinker"
7.65mm Luger	93	Unique	5.0	1250	Norma SP
7.65mm Long French	77	Unique	3.6	1100	Lyman 311252
7.5 Swiss Rev.	105	B'eye	2.0	720	Lyman 31133 HP
8mm Roth-Steyr	95	B'eye	2.5	970	Lyman 313226
8mm Rast-Gasser	95	B'eye	2.2	800	Lyman 313445
8mm Nambu	83	Unique	3.0	950	Lyman 32362
8mm Lebel Rev.	115	No. 6	3.0	765	Lyman 32359
7.5mm Norwegian	115	No. 6	2.0	720	Lyman 32359
9mm Steyr	116	Unique	6.7	1250	Norma 9mm SP
9mm Bayard	116	Unique	7.0	1280	Norma 9mm SP
9mm Browning Long	75	Unique	5.0	1078	Lyman 358101
38 Colt Long	150	No. 6	3.0	770	Lyman 358477
380/200 (38 S&W)	135	B'eye	3.0	830	Lyman 358480
380/200 (38 S&W)	115	Unique	5.0	980	Lyman 358345
10.35mm Italian Rev.	225	B'eye	3.0	695	Lyman 421183
11mm German Rev.	205	5066	5.2	780	Lyman 42798
11mm French Rev.	200	B'eye	3.1	725	Lyman 42798
44 S&W Russian	250	B'eye	5.7	700	Lyman 429336
44 S&W American	205	5066	5.5	800	Lyman 429478
44 Colt	210	5066	5.0	650	Lyman 429185
45 S&W	250	5066	6.0	700	Lyman 454424
45 Colt	250	Unique	8.0	810	Lyman 454424
455 Webley Rev.	250	B'eye	3.5	710	Lyman 454424
	200	Unique	6.2	775	Lyman 452460

Above load combinations will enhance the sporting potential of the arms involved, but emphasis is on maintaining standard pressure and performance levels. Load information was gathered from various sources, and about 90% of these loads were actually fired and tested by the author. All should be safe in the proper weapon if in first class condition.



Four 32 ACP loaded with hunting type bullets.

The British also used the S&W Military and Police model in 38 S&W (380/200) cal. and the S&W Model 1917 in 455 cal. These are both excellent weapons. Revolvers chambered for the 38 S&W cartridge cannot be altered to handle the 38 S&W Special. Not only is the chamber of the 38



S&W too large in diameter, but so also is the barrel. Very poor accuracy would attend any such mis-conversion.

Russia has used more modern and advanced military small arms than we have been led to believe. In 1870 the Russians adopted the Smith & Wesson 44 Russian top break revolver, at the time one of the best military handguns available. This was replaced in 1895 with the gas sealing 7.62 Nagant revolver. When the hammer is cocked the cylinder pushes forward, the chamber mouth slipping over a bevel on the end of the barrel. The case, extending beyond the bullet, enters the barrel to further minimize gas escape. The system works all right, but complicates manufacture and is of doubtful value. In 1930 Russia adopted the Tokarev TT-30 semi-auto pistol of 7.62mm caliber, and later improved it as the Model TT-33. The 7.62mm Russian auto cartridge is practically identical to the bottlenecked 7.63mm Mauser. After WW II Russia designed a new 9mm pistol-round and adopted the Makarov semi-auto and Stechkin selective-fire pistols.

44 S&W Russian revolvers, military or civilian, are no longer common. The German firm of Ludwig Loewe made copies of this revolver, but thus far not many of them have shown up either. Fair numbers of the Nagant revolver and 7.62mm Tokarev auto pistols have been sold from time to time. Russian small arms are usually crude by our standards, but nevertheless are well-designed and quite sturdy. Some people refuse to believe a gun with a rough finish can function and shoot just as well as one with a fine polish. None of the late model 9mm pistols have been sold to date; the Stechkin, being capable of full automatic fire, probably never will be.

Germany has used a variety of modern and well-designed military handguns. In 1904 the navy adopted the 9mm Luger pistol and cartridge, and the army followed suit in 1908. The Mauser auto pistol in 9mm and 7.63mm caliber was also used as were a variety of pocket type automatics in 7.65mm (32 ACP) caliber. In 1938 the Germans adopted the advanced Walther P-38 of 9mm Luger caliber. The post-war West German army also uses the P-38 pistol. All of the German service automatics have been sold in large numbers along with Spanish-made copies of some models. Luger, Mauser and Walther pistols are too well known to require additional description or comment here. Prior to adoption of the Luger automatic, Germany used an 11mm (43 caliber) service revolver. A few of these have been sold as surplus, but are obsolete, designed for black powder and hardly

constitute first class field weapons. The various auto pistols are extremely well-made and can be adapted to sporting use by nothing more complicated than using hunting type bullets.

Special Hunting Loads for Military Semi-auto Pistols				
32 ACP (3 $\frac{1}{8}$ " bbl.)				Bullet diameter .308"
Bullet grs.	Powder type	Charge grs.	Vel. fs	Remarks
77	B'eye	2.2	968	Lyman 311252
85	Unique	3.1	985	Lyman 311419 GC
100	Unique	2.8	876	30 cal. Speer "Plinker"
380 ACP (5" bbl.)				Bullet diameter .355"
Bullet grs.	Powder type	Charge grs.	Vel. fs	Remarks
75	Unique	5.0	1067	Lyman 358101 sized .355"
105	Unique	4.6	972	Home swaged, $\frac{1}{2}$ -jacket
116	Unique	4.1	910	Norma 9mm Luger SP
9mm Luger (3 $\frac{7}{8}$ " bbl.)				Bullet diameter .355"
Bullet grs.	Powder type	Charge grs.	Vel. fs	Remarks
105	Unique	7.0	1316	Home swaged, $\frac{1}{2}$ -jacket. Hot load!
116	Unique	6.0	1030	Norma 9mm soft point
124	Unique	6.0	1010	Harvey Prot-X-Bore, zinc base
125	Unique	6.3	1165	Lyman 356402. Hot load!
45 ACP (5" bbl.)				Bullet diameter .452"
Bullet grs.	Powder type	Charge grs.	Vel. fs	Remarks
185	2400	14.0	865	Lyman 452389 or any lead semi-wadcutter of 180 to 185 grains
185	Unique	8.0	1050	Very good hunting load
190	Unique	7.6	1024	Harvey Prot-X-Bore, zinc base
200	Unique	7.5	970	Lyman 452460
215	Unique	7.4	935	Speer cast lead

NOTE—All combinations above are heavy hunting loads for military type automatics. They are not recommended for casual plinking or target practice. All were field tested and chronographed by the author without damage to the test guns used. However, it is advisable to start from 0.30- to 0.50-grain below the load listed and work up from there. If at any point the slide appears to recoil more violently than normal, back off one or two tenths of a grain. It is a good idea to reduce 32 and 380 ACP loads by about 0.20-grain if they are to be used in lightweight pocket automatics.

France now uses the M-50, 9mm automatic, similar to the Belgian Browning Hi-Power. A well-designed pistol, but very few, if any, have appeared on the surplus market. During World War II the French official side arm was the M-35 auto in 7.65mm Long (MAS) caliber. Moderate quantities of these have appeared at odd times. French officers also carried various 7.65mm (32 ACP) caliber automatics such as the Spanish-made Ruby and Star pistols. Fair numbers of the 1892 French Ordnance or Lebel revolvers of 8mm caliber have appeared as surplus. French military handguns can be adapted to sporting use, but 7.65mm Long and 8mm Lebel pistol ammunition is not easy to find.

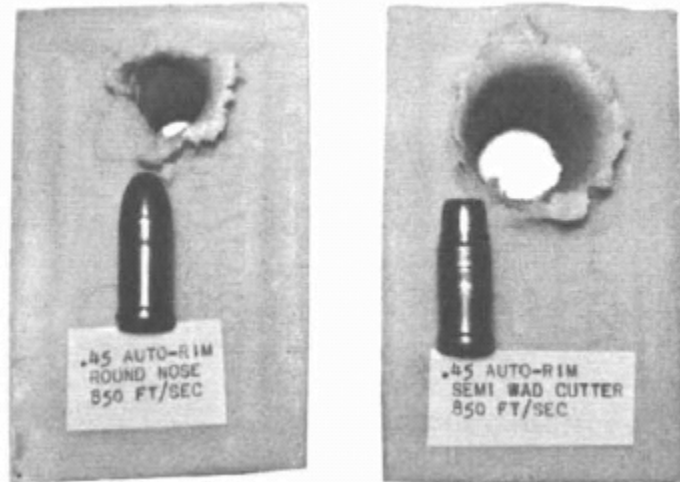
Other European countries used pistols of their own design or bought those offered by established arms plants. As a matter of national pride, each

had to have something a little different. The Austro-Hungarian cavalry adopted the 8mm Roth-Steyr automatic in 1907, then in 1912 Austria changed to the more powerful 9mm Steyr pistol. Prior to adopting the automatic, Austria used the 8mm Rast-Gasser solid frame, rojector revolver. All of these arms have been sold as surplus in varying quantity. They show good manufacture, but are obsolete and ammunition in shooting quantities is a problem. A few years ago the Danish Model 1910 Bergman automatic for the 9mm Bayard cartridge made a brief appearance — now they're more of a collector's item than anything else, but the cartridge has ample power for field use. The 7.5mm Swedish and Swiss Nagant revolvers have been in plentiful supply, and both military and commercial ammunition has been available. Many of the Swedish models were converted to 22 Long Rifle by lining the cylinder and barrel. These are extremely well-finished inside and out.

Belgium has been a major arms manufacturing center since the 1800's and their products are among the world's finest. Fabrique Nationale d'Armes de Guerre, S. A., of Herstal, Liege (or F. N., as it is more generally known), turns out both sporting and military small arms. John M. Browning, the great American arms designer, was associated with the F. N. organization for years. They held the European rights to many of his patents. F. N. Browning pistols have been very widely used as military side arms. In 1935 they began manufacture of the latest Browning design, known as the "F. N. Hi-Power 9mm," a modification actually of the 1911 Colt 45 Gov't. automatic. Quantities were manufactured in Canada during World War II after the Germans overran Belgium. Many of these pistols were brought back as souvenirs by returning GI's and a few have turned up as surplus. A sporting or civilian model made by Browning is available through sporting goods dealers. Magazine capacity is 13 rounds, enough to keep one going a long time in a survival situation. The F. N. Browning hammer-less automatic in 9mm Browning Long or 9mm Browning Short (380 ACP) was another popular military side arm in Europe. The Swedes adopted it in 1907 and used it until they changed to the 9mm Luger cartridge and the Lahti pistol in 1940. Many of these Swedish 380 pistols have been sold in surplus arms stores. The variety of Belgian pistols in 32 and 380 ACP caliber is too great for detailed discussion here. The same can be said for the many Italian and Spanish made pistols of the same caliber.

## **Ammunition**

The only thing really wrong with most military handguns as sporting weapons is the bullet they use. Soft point or expanding bullets of any type have been outlawed under international agreement. In combat the idea is to put a man out of action so he can no longer participate in the engagement, not cripple him for life. Dead soldiers are of no value, but they are also no burden. Wounded men are not only of negative value, but in addition they constitute a considerable problem because they have to be transported and cared for. When hunting, though, we don't want to merely wound an animal; our object is to both stop and kill as quickly as possible. This is best accomplished with bullets designed to shatter and tear up the maximum amount of bone and tissue. Years ago handgun hunters found out that round nose, hard alloy or jacketed bullets did a very poor job on anything at the velocity possible with such weapons. This prompted men like Elmer Keith, the late Phil Sharpe and Jim Harvey, plus many others, to develop more effective bullets. It has been well-proven that, at velocities of from 600 to about 13–1400 fps, the flat point, sharp-shouldered Keith-type bullet is the most effective on game. The half-jacketed, pure lead type designed by Jim Harvey and further tested and developed by Kent Bellah, is as good or better in stopping and killing power, but not as accurate. The latest half-jacket bullets, made with the jacket material riding up over the ogive, can now be driven at speeds in keeping with a jacketed bullet — they can't lead, and they are more accurate. The big factories have these now in 357 and 44, and Shooters Service & Dewey, Inc., Clinton Corners, N. Y., also has them for the handloader. Unfortunately, modern hunting bullets work fine in revolvers, but don't function very well through the automatic, and military handguns are predominantly of the latter type.



**Soap block test** illustrates the difference in destructive power between standard and hunting type bullets.

The author has conducted all kinds of experiments with an impressive number of automatic pistols to improve them as sporting weapons. Handloading with hunting bullets made an immediate and marked improvement in killing power regardless of caliber, but created severe feed and function problems. While it is true that a malfunction could bring on a slight case of rigor mortis in a gunfight, it's just an inconvenience in the field. It is possible, with some guns and loads, to achieve almost 100% efficiency, but it invariably requires a certain amount of fitting to the individual gun. Here are the most important factors affecting the feed and functioning of lead bullets in the automatic: Bullet hardness, bullet shape, seating depth, crimp, headspace and general shape and smoothness of the feed ramp. Of course, the powder load used will also have an effect, but this is the easiest item to adjust.

## Dimensions of Military Handgun Cartridges

Cartridge	Case Type	Bullet Dia.	Neck Dia.	Shoulder Dia.	Base Dia.	Rim Dia.	Case Length	Cartridge Length
7.62mm Russian Nagant	B	.295	.286	—	.355	.388	1.53	1.53
7.62mm Russian Tokarev	C	.307	.330	.370	.380	.390	0.97	1.35
7.63mm Mannlicher	D	.308	.331	—	.347	.347	0.82	1.12
7.63mm Mauser	C	.308	.332	.370	.381	.390	0.99	1.36
7.65mm Browning (32 ACP)	H	.308	.336	—	.336	.354	0.68	1.03
7.65mm Luger	C	.308	.322	.374	.388	.391	0.75	1.15
7.65mm Long. French MAS	D	.309	.336	—	.337	.337	0.78	1.19
7.5mm Swiss Revolver	B	.317	.336	—	.354	.407	0.89	1.29
8mm Roth-Steyr	D	.318	.346	—	.347	.347	0.74	1.14
8mm Rast-Gasser	B	.320	.333	—	.336	.374	1.04	1.41
8mm Nambu	G	.320	.338	.388	.408	.413	0.86	1.25
8mm Lebel Revolver	B	.323	.380	—	.384	.400	1.07	1.44
7.5mm Norwegian	B	.325	.328	—	.350	.406	0.89	1.35
9mm Luger	D	.355	.380	—	.392	.393	0.76	1.16
9mm Steyr	D	.355	.379	—	.383	.384	0.90	1.30
9mm Bayard	D	.355	.380	—	.388	.383	0.91	1.33
9mm Browning Short (380 ACP)	D	.356	.373	—	.373	.374	0.68	0.98
9mm Browning Long	H	.356	.380	—	.382	.404	0.79	1.10
9mm Russian Makarov	D	.363	.384	—	.389	.396	0.71	0.97
38 Long Colt	B	.357	.377	—	.378	.433	1.03	1.32
380/200 British (38 S&W)	B	.359	.386	—	.386	.433	0.78	1.20
10.35mm Italian Revolver	B	.422	.444	—	.451	.505	0.89	1.25
11mm German Revolver	B	.426	.449	—	.453	.509	0.96	1.21
11mm French Revolver	B	.425	.449	—	.460	.514	0.94	1.15
44 S&W Russian	B	.429	.457	—	.457	.515	0.97	1.43
44 S&W American	B	.434	.438	—	.440	.506	0.91	1.44
44 Colt	B	.443	.450	—	.456	.483	1.10	1.50
45 Colt ACP	D	.452	.476	—	.476	.476	0.898	1.17
45 S&W Schofield	B	.454	.477	—	.476	.522	1.10	1.43
45 Colt Revolver	B	.454	.476	—	.480	.512	1.29	1.60
455 Webley Revolver	B	.454	.476	—	.480	.535	0.77	1.23
455 Webley Auto	H	.455	.473	—	.474	.500	0.93	1.23
50 Remington Army	A	.508	.532	.563	.565	.665	0.57	1.24

Unless otherwise indicated, all dimensions are in inches

### CASE TYPE:

A—Rim Bottleneck

C—Rimless Necked

G—Semi-rim Necked

B—Rim Straight

D—Rimless Straight

H—Semi-rim Straight

Nation	Weapon	Caliber	Type	Cap.	Bbl.	Wgt.	Remarks
Argentina	Ballester Molina	45 ACP	S-A	7	5	40	Modified Colt 45 auto design
Austria	Steyr M-12 Roth-Steyr M-07 Rast-Gasser	9mm Steyr	S-A	8	5	34	Top loading
		8mm R-S	S-A	10	5.1	34	Top loading
		8mm R-G	R	8	4.5	33	Solid frame revolver
Belgium	Browning Hi-Power FN Browning	9mm Luger	S-A	13	5	32	Very good sporting weapon
		9mm Br. Long	S-A	7	5	30	Same as Colt Pocket Model, longer
Britain	Enfield	380/200	R	6	5	28	Top break, 38 S&W revolver
	Webley	455	R	6	4.6	38	Top break
	Webley-Fosbery	455	R	6	6	40	Top break automatic revolver
	Webley auto	455 auto	S-A	7	5	36	Used by British navy, obsolete
Czechoslovakia	Cz M-52	7.62mm Russ.	S-A	8	4.7	25	Original design, very good pistol
	Cz M-50	7.65mm Br.	S-A	8	3.8	24	Mod. Walther PP, shoots 32 ACP
	Cz M-47	9mm Luger	S-A	8	4.6	33	Double action, hammer
	Cz M-27	7.65mm Br.	S-A	8	3.5	25	Uses 32 ACP and 380 ACP types
Denmark	Bergmann M-10	9mm Bayard	S-A	6-10	4	36	Very sturdy and well-made
France	M-1950	9mm Luger	S-A	9	4.4	29	Similar to Browning Hi-Power
	M-1935A & S	7.65mm Long	S-A	8	4.3	26	Mod. Colt 45 auto design
	Lebel M-92	8mm Lebel	R	6	4	31	Solid frame, swing out revolver
	Service M-73	11mm French Serv.	R	6	4.2	39	Quick, hinged takedown
Germany	Walther P-38	9mm Luger	S-A	8	4.8	34	A most modern design
	Luger M-08	9mm Luger	S-A	8	4.6	30	Toggle joint lock, Maxim-type
	Mausier M-95	7.63mm Mauser	S-A	5-10	5.3	45	A few also made in 9mm Luger cal.
	Walther PP & PPK	7.65mm Br. & 380	S-A	8-7	3.8	23	
	Service M-79	10.6 (11mm)	R	6	5	37	Var. models, all black powder
Hungary	Model 48	7.65mm Br.	S-A	8	4	24	Mod. Walther PP design
	Frommer M-39	7.65 & 9mm Br.	S-A	7	3.3	22	Var. models of 32 & 380 ACP
Italy	Beretta M-51	9mm Luger	S-A	8	4.5	31	Very good. Available in U.S.
	Beretta M-34	9mm Brown.	S-A	7	3.5	24	Similar model sold in U.S.
	Glisenti M-10	9mm Luger	S-A	7	4	32	Not safe with standard 9mm Luger
	Service M-72	10.35mm Ital. Serv.	R	6	6.3	33	
Japan	Nambu Type 14	8mm Nambu	S-A	8	4.5	30	
Mexico	Obregon	45 ACP	S-A	7	5	39	Mod. Colt 45 auto design
Poland	Radom M-35	9mm Luger	S-A	8	4.8	30	Improved Browning design
Spain	Star	45 ACP	S-A	7	5	38	Colt-Browning system
	Astra M-400	9mm Bayard	S-A	8	5.5	32	Straight blow-back type
Sweden	Lahti M-40	9mm Luger	S-A	8	5.5	36	Short recoil type
	FN Browning M-07	9mm Brown. (380)	S-A	7	5	32	Similar to Colt Pocket auto
	Nagant M-87	7.5mm	R	6	4.5	28	Solid frame revolver
Switzerland	Neuhausen M-49	9mm Luger	S-A	8	4.7	34	Available in U.S.
	Army Model 1882	7.5mm	R	6	5	30	Solid frame, DA revolver
Russia	Makarov MPM	9mm Makarov	S-A	8	3.8	26	Mod. Walther PP
	Stechkin-APS	" "	S-A	20	5	30	Full auto, fire selector
	Tokarev TT 30 & 33	7.62mm Rus.	S-A	8	4.5	33	Simplified Browning design
	Nagant M-95	7.62mm Nagant	R	7	4.5	28	Gas-seal cylinder
United States	Colt M-1911	45 ACP	S-A	7	5	39	Military & civilian models
	Colt M-1917	" "	R	6	5.5	40	Colt and S&W revolvers both
	S&W M-1917	" "	R	6	5.5	37	Requires 3-shot clip for 45 ACP
	Colt New Service-09	45 Colt 1909	R	6	6	40	In use only two years
	Colt Army & Navy-92	38 Colt Long	R	6	6	34	Not satisfactory in combat
	S&W Army M-1875	45 S&W	R	6	7	38	Schofield model, top break
	Colt SA Army 1873	45 Colt	R	6	7.5	40	Solid frame, rod ejection

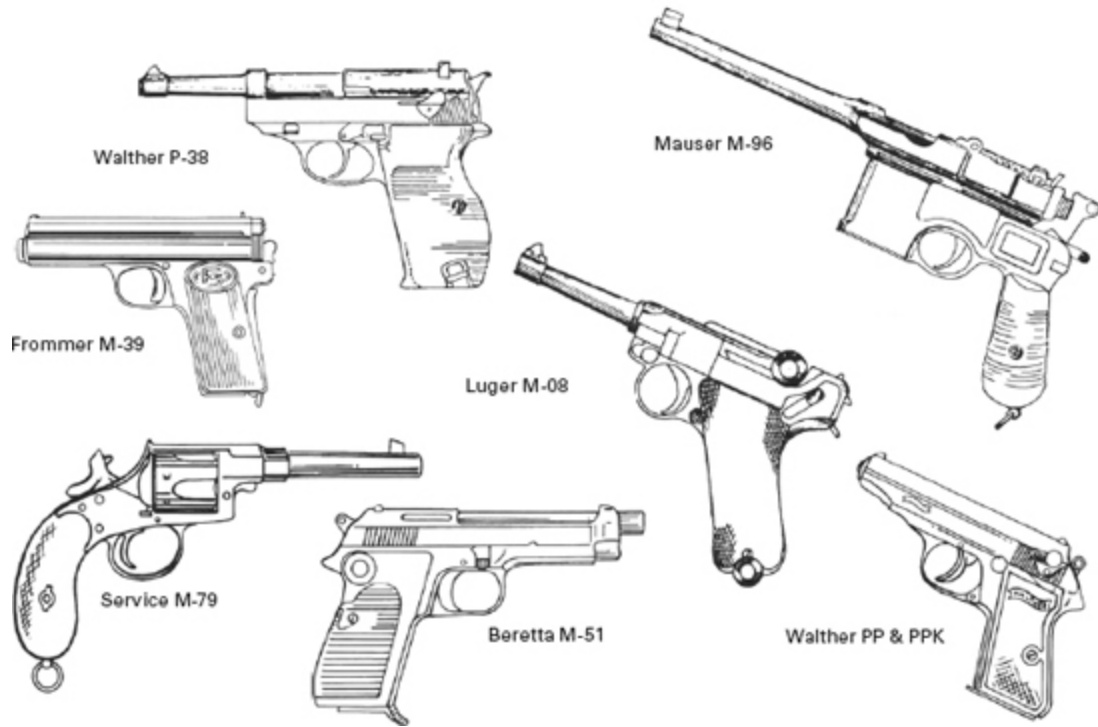
NOTE—Only the principal or official model is listed. Most governments used a variety of alternate types and officers often used non-official makes. The latest model is always listed first, older models in order.

S-A—Semi-auto R—Revolver  
Cap.—Cylinder or magazine capacity

Bbl.—Barrel length in inches  
Wgt.—Weight in ounces







A round nose or tapered cone will ordinarily feed and function better than a flat, blunt one. Many hunting bullets have a sharp shoulder that often hangs up as the cartridge chambers. If the shoulder is seated even with the shell mouth, this leaves only a tapered cone protruding from the case and improves feed in some instances. However, there are other factors that enter into this; a straight rimless case is stopped in its forward motion by the case mouth butting against a shoulder in the chamber. Such cases should not be roll-crimped — if heavily crimped, the cartridge might not fire as the firing pin will only drive it further into the chamber. This can be corrected by allowing the bullet to protrude beyond the case sufficiently to support the entire cartridge. A soft alloy bullet may have to protrude a little further than a hard one. Straight semi-rimmed cases are supported by the rim and bottlenecked cases by the shoulder, but even these can sometimes be improved by adjusting the bullet seating depth just so. As a general rule, if the bullet is seated friction tight without crimp, it should be seated deep enough to prevent any portion from contacting the end of the chamber or rifling lead. If the bullet protrudes too far the action can't close properly, which will certainly cause malfunction. As little as .01" difference in seating depth can affect functioning.

It is sometimes possible to improve the operation of an automatic with home loads and lead bullets by polishing or altering the chamber mouth or the feed ramp. A slight grinding operation to reduce the angle is all that is necessary. It is better to trust this to a gunsmith as overdoing it might ruin the barrel entirely. Most Browning designed or imitated guns have a simple groove to act as a feed ramp. It is easy to extend the radius slightly and polish out any rough spots. If the pistol shoots a semi-rimmed cartridge exercise caution so as not to remove the rim support. Some pistols have the feed ramp cut in the top of the magazine well, the barrel lug or some other place. Usually you can't do much to these except polish them. I polished the feed ramp and chamber mouth of a 45 automatic, then sent the barrel to Marker Machine Co. and had it hard chrome plated inside and out. This made quite a difference in the handling of lead bullets.

Automatic pistols are adjusted to handle recoil within rather narrow limits. For this reason, published loading data is usually for loads of equal or less power than standard factory ammunition. This keeps everyone out of trouble, because if extra heavy loads are used, the slide will slam back too hard and eventual damage may result. Heavy military pistols will handle full charges better than lightweight pocket guns, but there is a limit to what any of them will stand. If you want to get higher than standard velocity the only way to do it is with lighter than standard bullets. Heavier bullets must be driven at reduced velocity. Loading data for this article was worked out and tested mostly in heavy frame military pistols and none of the test guns was damaged in any way. If you use the data for light pocket pistols reduce all top loads by 0.20-gr. or so, especially if the slide of your pistol appears to recoil more violently than usual. Individual guns vary in performance with the same load and this must be considered. Any of the standard pistol powders can be used for loading military handgun cartridges. Standard loads are listed by the powder companies for all but a few of the European calibers. Hercules Unique appears to give the most satisfactory pressure-velocity ratio for top loads in the auto pistol. As long as you stick to a standard bullet weight and velocity you are not likely to get in trouble.

### **32 ACP (7.65mm Browning)**

It is difficult for Americans to realize the 32 ACP is a military and police cartridge. It has been quite popular in Europe and is still used by many police organizations on the continent. Here it is regarded as something

useful only to frighten old ladies or kill sparrows. Regardless, it is one of the most popular pistol cartridges ever designed, mostly because of the small, light, handy weapons that fire it. For hunting it is entirely a small game number. Commercial, full jacketed bullets will do a fair job on such things as cottontail rabbit or birds with out ruining any edible meat. However, good bullet placement is important. It can be improved to a satisfying degree by handloading. Most loading tables give bullet diameter as .311" but this is wrong. It is actually 30 cal. and uses .308" or .309" bullets. Larger diameter bullets will bulge the case and the cartridge won't chamber or feed properly.

Lyman's 313445 (95-gr.) is a good semi-wadcutter for target or hunting if you prefer cast bullets. The best bullet I have found for loading the 32 ACP is the 100-gr. 30-cal. "Plinkers" made by Speer or Hornady. Seat them with the slight shoulder even with the case mouth and don't crimp. They will function to near perfection. The Norma 93-gr. 30 Luger soft point will also work well, but expansion is a sometimes thing at permissible velocity. Any of these bullets will turn the 32 ACP into a fine small game or pot gun, one much more effective than the 22 Long Rifle.

### **7.65mm Long, French (MAS)**



French military cartridge used in the 1935A pistol and some submachine guns. Sort of an elongated 32 ACP, the case is rimless rather than semi-rimmed. It is also similar to the 8mm Roth-Steyr except for the slightly shorter case length and difference in bullet diameter. Any of the bullets listed for the 32 ACP can be used for loading as bullet diameter is .309". A little more powerful than the 32 ACP, but not enough to qualify it for anything the smaller cartridge won't handle.

### **7.63mm Mannlicher**



A straight, rimless cartridge for the 1900 and 1901 Mannlicher military automatics. It is another elongated 32 ACP type like the French 7.65mm Long. It is slightly more powerful than the 32 ACP, but still effective only for small game. Use any of the bullets listed for the 32 ACP.

### **7.65mm (30) Luger**



Introduced in 1900 as the original cartridge for the Luger pistol. Commercial ammunition is loaded in the U.S. This is another true 30 cal. using .308g bullets. Norma makes a 93-gr. soft point bullet for this cartridge or one can use the 100-gr. 30-cal. swaged rifle bullets. Lyman's 311419 85-gr. cast gas check bullet is a good one for field use. With its 1220 fps muzzle velocity, the 7.65mm Luger shoots rather flat, but doesn't have sufficient knockdown ability for anything but small game. The 100-gr. Speer "Plinker" makes this a much more effective hunting round than the standard metal cased bullet.

### **7.63mm (30) Mauser**



Designed by the American, Hugo Borchardt, in 1893 for the first successful commercial auto pistol. The Borchardt automatic was later redesigned as the famous Luger pistol. The cartridge has been used mainly in Mauser automatic pistols and various copies manufactured in Spain and China. The 7.63 Mauser was the high velocity champion of the pistol world until the 357 S&W Magnum edged it out. 1410 fps is good handgun velocity even though the bullet weighs only 86 grains. Lyman 311419 85-gr. gas check bullet can be used for very satisfactory hunting loads. The swaged 30-cal. rifle bullets of 100-gr. weight are also quite good, even at slightly reduced velocity. With proper hunting bullets the 7.63 Mauser will do for such larger animals as coyote, bobcat and the like. I've also heard of deer being taken with the 30 Mauser pistol, but it is not an entirely adequate cartridge for animals of this size.

### **7.62mm Russian Tokarev**



Adapted by Russia in 1930 for the Tokarev automatic pistol. It is so similar to the 7.63mm Mauser that most Mauser ammunition can be used in the Russian pistol. Bullets and loading data would be the same.

### **7.62mm Nagant Revolver**



Cartridge for the Russian Nagant revolver with gas-seal cylinder and similar types. Ammunition is currently available in many of the surplus stores, but won't last forever. When the supply is exhausted, satisfactory cases can be made by using 32-20 brass. It isn't as long as the Nagant case, but will work. Bullet is of 30 cal. and one can use the 100-gr. 30-cal. rifle bullets mentioned earlier. Lyman's 311316 110-gr. gas check bullet for 32-20 rifles works well if properly sized. In power, the 7.62 Nagant is very similar to the 32-20 when fired in the revolver. It isn't a bad small game number at all.

### **8mm Roth-Steyr**

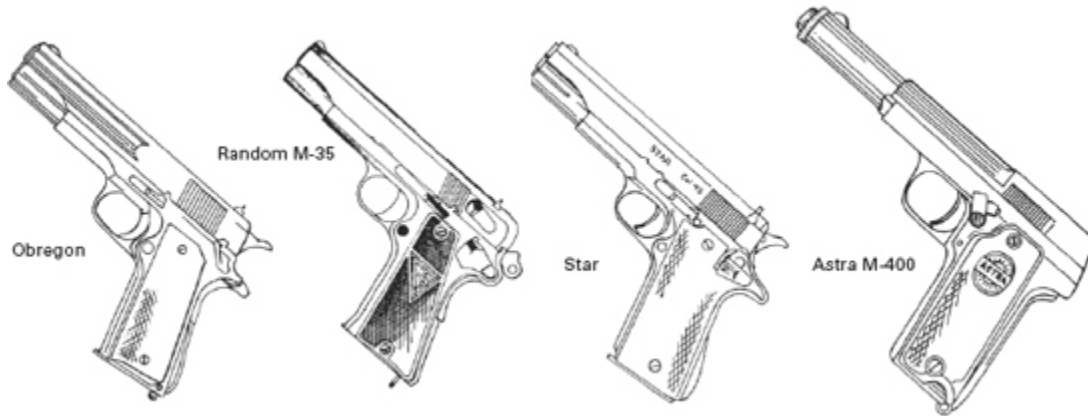


Cartridge for the 1907 Model Austro-Hungarian cavalry pistol used in WW I. Another elongated 32 ACP type, it uses a little larger diameter bullet (.319"). At first glance it is difficult to distinguish it from the French 7.65mm Long. Lyman 313226 or 313445, both of 95 grains, can be used for loading if properly sized. Ammunition is scarce and something of a collector's item at the present time. Ammunition could probably be made from 7.65mm Long brass, but then this is not very plentiful either.

### **8mm Nambu**



Official Japanese handgun cartridge used in WW II. It was adapted in 1914 for the Nambu auto pistol of the same year and also used in the modified 1925 model and the odd looking 1934 model. Quite a few pistols for this cartridge were brought back by returning servicemen, but not many have been sold in surplus stores. The cartridge resembles the 7.65mm Luger, but it has a semi-rimmed case and a larger diameter bullet (.320"). About the same class as the 7.65 Luger, it is only slightly less powerful. Any bullet of 80 to 110 grains can be used if sized to the proper diameter.



### **8mm Lebel, Revolver**



This is a straight rimmed cartridge for the 1892 French Ordnance revolver. In appearance it resembles the 32-20 and one can make ammunition by cutting off 32-20 brass and reforming it. The old Lyman 32359 115-gr. bullet can be used or any other 32 revolver bullet sized to .323". In power it is in about the same class as the 32 S&W Long.

### **7.5mm Nagant**



Both the Swedes and the Swiss used a revolver of practically identical caliber. The sample rounds in the author's collection differ in bullet type. The Swedish cartridge has an outside lubricated bullet of .325" diameter and the Swiss version has an inside lubricated bullet of about .317" maximum. I have fired the Swiss cartridge in the Swedish revolver and they shoot with acceptable accuracy. I don't know how the Swedish cartridge works in the Swiss revolver. Both versions are currently available and Norma loads smokeless commercial ammunition for the Swedish Nagant. You can make brass for either one by cutting off 32-20 cases. The old Lyman 32359 115-gr. bullet is about the only one of proper diameter. However, smaller 32 S&W or 32-20 bullets will work and give satisfactory hunting accuracy. In power they are in the same class as the 32 S&W Long.

### **8mm Rast-Gasser**



Cartridge used in the 1870 Rast-Gasser revolver, by Austria and to some extent by Italy. It closely resembles the 8mm French Lebel, but has a smaller diameter bullet of .320" It also looks somewhat like the 32 S&W Long, but with a longer case. I have been told that you can shoot the 32 S&W Long in these revolvers, but have never actually tried it. They are of practically the same power.

### **9mm Browning Short (380 ACP)**



A well-known cartridge that has been loaded by American companies ever since Colt introduced the Browning pocket automatic in 1910. It was first introduced in Europe by FN in 1908. At one time or another it has been the official military cartridge of Czechoslovakia, Italy and Sweden. It is also a favorite with many European police departments. So many pistols have been chambered for the round it would be impracticable to try to list all of them. It is actually quite a good small game cartridge, though not considered a sporting round in the U.S. The author has used it with both factory ammo and handloads for shooting all kinds of small game — for which it is a better cartridge than the 32 ACP. Bullet diameter is .356" and any 9mm bullet up to 115 grains will work all right. Home swaged, half-jacketed bullets of 105 grains are very good for hunting, but don't function as well as might be desired. Lyman's 358242 95-gr. bullet works well, but is round nosed and doesn't add much to the killing power.

### **9mm Browning Long**



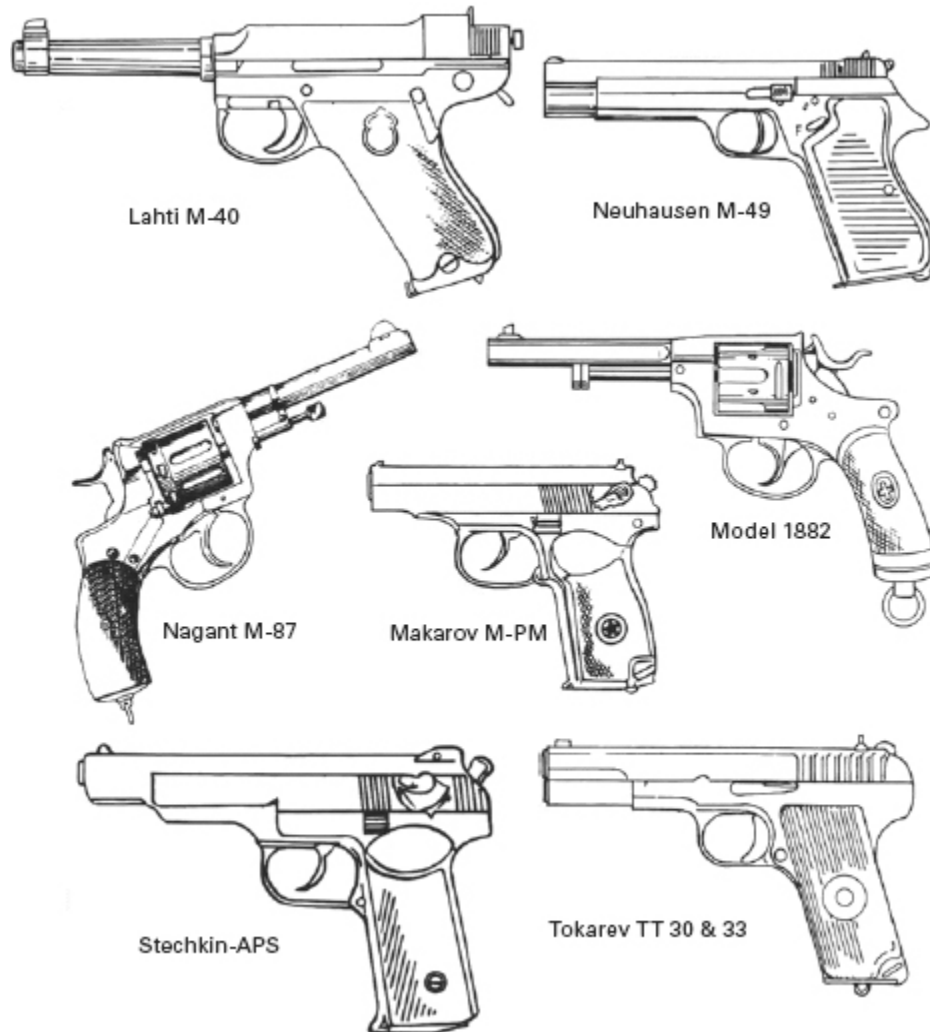
A longer version of the 380 ACP, popular in Europe, but never used in the U.S. It was designed for the FN Browning 1903 pistol which is similar to the Colt Pocket Model made here. Several other pistols were also made for it, including the Webley & Scott New Military and Police Model. Belgium used the 9mm Long Browning as a military weapon up to 1935. It is somewhat more powerful than the 380 ACP, but not much. Ammunition is not available in the U.S. and the caliber is seldom used here for any purpose.

### **9mm Parabellum (Luger)**



The 9mm Luger is undoubtedly the world's most popular military handgun cartridge. It is at present the official caliber of all the NATO powers except the U.S. It was introduced in 1902, but was not highly popular in the U.S. until recent years. It is much more widely used now because of the many surplus 9mm weapons sold. Loaded with hunting type bullets, the 9mm Luger is actually quite an effective small-to-medium game cartridge. Any .355" diameter bullet from 95 to 130 grains can be used. Norma 115-gr. soft point bullets improve field performance and so do pure lead-zinc base or swaged half-jacketed bullets. Many shooters report excellent results using the Harvey 124-gr. Prot-X-Bore bullets seated about .120" out of the case mouth and uncrimped. Lyman's 356402 is a good cast bullet of 125 grains. Many cast and swaged commercial bullets are available for the 9mm Luger. The number of European pistols made for the 9mm Luger is too long to list here: In the U.S. both Colt and S&W currently manufacture auto pistols of this caliber.





### 9mm Steyr



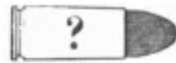
Austrian military cartridge for the Model 1912 Steyr auto pistol. Using standard 9mm or .355" bullets, it is longer than the 9mm Luger, but of about the same power. Loading data for the Luger cartridge can be used for the 9mm Steyr, a straight, rimless case with dimensions practically identical to the Colt 38 ACP. The difference is that the Colt cartridge is semi-rimmed and .008" shorter. You can make 9mm Steyr cases from 38 ACP brass by turning down the rim, resizing, then seating the bullet out of the case far enough to adjust the difference in headspace.

### 9mm Bayard Long



Official Danish cartridge for the 1910 Bergmann-Bayard automatic. The Spanish also used the same combination and in addition the Astra pistol and various Browning copies made in Spain were chambered for the round. The cartridge is very similar to the 9mm Steyr, only longer. The Astra Model 400 pistol designed for the 9mm Bayard will also handle, with out adjustment, the 9mm Steyr, 38 Colt ACP and the 9mm Luger. In a pinch it will also digest the 9mm Browning Long. It is the only pistol capable of this, and obviously there must be a similarity in many dimensions of these cartridges to make this possible. The 9mm Bayard is a fairly potent round and makes a good field cartridge.

### **9mm Makarov**



This is the current Russian pistol cartridge. Neither guns nor ammunition have been available so there is no use discussing its sporting potential. In power it is between the 380 ACP and the 9mm Luger.

### **380/200 Mk II (38 S&W)**



The British adopted this cartridge to replace the 455 Webley. It is the same as the old 200-gr. 38 S&W “Super Police” load discontinued some years ago. It is a good short range, small game round, but has a rather curved trajectory. It can be improved a little by handloading, but is not a very versatile cartridge for field use.

### **38 Colt Long**

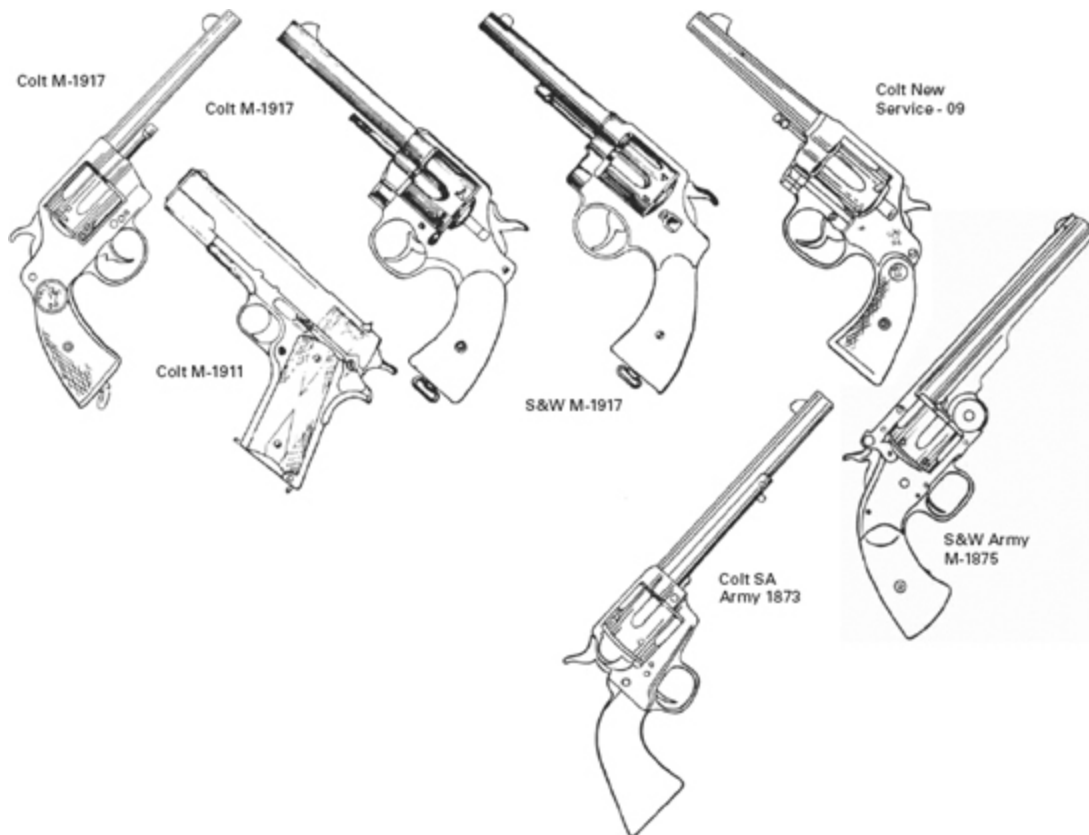


Obsolete American military revolver cartridge. It is still loaded commercially and makes a satisfactory small game number at short to moderate ranges. Its performance can be improved quite a bit by using swaged or Keith type cast bullets. The old revolvers won't stand modern high pressures so don't try to exceed factory velocity by very much.

### **44 S&W Russian**



This obsolete, black powder, Russian military revolver cartridge was also popular in the United States. Both the gun and cartridge are collectors' items. In its day the 44 Russian established a record for outstanding accuracy and it demonstrated the ability of the S&W revolver as a truly effective field weapon. It is still a good hunting round for small to medium game, even with black powder. Ammunition can be made by trimming 44 S&W Special brass back to the proper length. Only light smokeless loads should be used as these old break-open revolvers were designed strictly for black powder pressures.



### 455 Webley Revolver



British military cartridge used in both world wars. It was adopted in 1879 to replace a slightly different round originally used in the Webley revolver. It is a good short range hunting cartridge, but is limited by its curved

trajectory. It can be improved by using lighter bullets at increased velocity. Any .454" or .455" diameter bullet will work, which means you can use 45 Colt bullets. When 455 revolvers are converted to fire the 45 Auto-Rim, accuracy with the factory load is usually poor because of the .452" diameter bullet. Handloading with bullets of proper diameter will make a big improvement.

### **45 Colt**



One time American military cartridge, still loaded and popular for target and hunting use. Plenty of loading data is available and there is no need to repeat any of it here.

### **45 ACP**

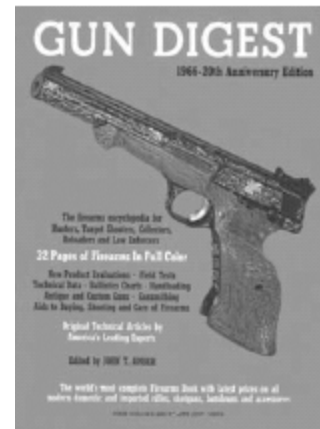


United States military cartridge since 1911 for the Colt Gov't. Model auto pistol, it is also used by Mexico and many South American countries. Although popular for match shooting because of its military position, the 45 ACP is not ordinarily considered a hunting round. However, when loaded with 180-or 200-gr. bullets at increased velocity, it is very effective on all small to medium game. Cast and swaged hunting bullets can be made to function extremely well. Lyman 452389 (185-gr.) and 452460 (200-gr.) bullets are both good hunting bullets. A variety of commercial semi-wadcutter and hollow point bullets are available for the 45 ACP. The 180-gr. bullet at over 1000 fps is very deadly on game and also increases the range potential of the 45 automatic.

In conclusion, a few points worthy of mention. Practically all military handguns can be used for sporting purposes as issued. Expensive remodeling is not necessary, and anyway they don't lend themselves to much alteration. Smoothing up the trigger pull or adding new sights is about all one can do. However, because these weapons are all sighted for a specific bullet weight and loading, changes in ammunition can make a big difference in point of impact, usually making the gun shoot higher or lower than desired. This can be corrected by adjusting the height of the front sight accordingly. Before you start for the field, be sure and sight in with the load to be used as this will save ammunition and disappointment. A set of

adjustable target sights is often a good investment if you expect to do much shooting under varying conditions. Any military handgun is a potential sporting weapon if the ammunition can be loaded with modern hunting type bullets. The general usefulness is determined primarily by this factor. For plinking or target practice, military ammunition is quite satisfactory. Those individuals not addicted to gun fights or grizzly bear hunts will find most military handguns entirely adequate as well as instructive and entertaining to shoot.

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## The Luger Myth

For generations shooters have spoken of the Luger pistol in hushed and reverent tones, overawed by its deadly appearance, it's world-wide reputation. Is this idolatry justified or... ■ R.A. Burmeister

OF ALL THE PISTOLS that have crossed the military, police and sporting scene in the past few decades three loom out above all others — the Luger, the Colt 45 Automatic, and the 357 S&W Magnum. Each has its own peculiar claim to fame; the Magnum because of its power, accuracy, and versatility, the 45 Auto because of its rugged reliability and because it is the official side arm of our armed forces, the Luger because of its sleek, functional appearance and its aura of utter efficiency. That this latter reputation is undeserved is largely the substance of this article.

The reliability of the revolver is well known — it is fully capable of handling low-grade ammunition and a wide variation in load intensities, and a half-century of use has shown it to be thoroughly dependable, hence the matter of reliability becomes largely a comparison of the Luger to the 45 Automatic.

### **Feed System**

The 45 Auto is an unusually reliable pistol characterized by a simple, positive cartridge feed system. The tip of the bullet of the top cartridge in the magazine is 1/8" back of the barrel, and the upward and forward movement of the cartridge is well-guided by a suitable groove cut in the frame ahead of the magazine well. Prolonging the path thus set is another similar groove or chamfer at the bottom of the chamber at the breech end of the barrel. Since the barrel breech is in its lowest, most rearward position at the time of cartridge feeding and stays that way until the cartridge is in the chamber, there is practically no chance for a malfunction in feeding.

In the Luger the tip of the top cartridge in the magazine is 5/16" back of the barrel, and this cartridge literally must chase the barrel during its forward movement; for as this cartridge is pushed forward out of the magazine, the barrel, too, is moving forward. The chamfer on the barrel is steeper than on the Colt, offering more chance of snubbing the tip of the bullet. This can be demonstrated by operating the Luger action slowly by hand — the bullet will follow the barrel, and its nose will touch the steep slope of the barrel chamfer momentarily before going forward into the barrel. Because of the steepness of the slope and the length of travel, the bullet does not enter the chamber as surely and smoothly as in the Colt. The feed system is a weak feature of the Luger.



**30-caliber American Eagle** Luger has 4 5/8" barrel and gold bead front sight.

### **Closure of Breech**

The final ¼” movement of the slide of the 45 Auto is powerful and reliable while the Luger breechblock has little snap left to it in its last ¼” of travel. This is because the knee action camming system of the Luger — smooth and efficient in handling the powerful recoil forces on the back stroke — is correspondingly weak at the end of the fore stroke because the recoil spring exerts a small indirect force at this part of the cycle. Consequently Luger ammunition must be loaded to full power as there is little reserve energy available on the fore stroke of the breechblock. This is in marked contrast to the 45 Auto, where the recoil spring acts in a straight line with breechblock and consequently has a powerful closing force of straight spring tension — thus a bit of dirt in the chamber or on breech face or a slightly deformed cartridge case which would jam the Luger is not likely to jam the 45 Auto. An interesting and illuminating comparison of the two pistols can be made by handloading for them, starting with a full load then reducing the powder charge (Bullseye) a 1/10 of a grain at a time. It will be seen that the 45 will function with loads so weak that the empty cases barely clear the ejection port, seeming to just fall out of the gun. The Luger will show distress long before this, and with only a few tenths reduction in powder charge malfunctioning will occur. I have extensively tested about a dozen Lugers, all especially selected for high quality, and speaking now only of commercial ammunition, I have never had a Luger that did not jam. Some in the first 50 shots, some later, but no Luger ever fired 500 shots with out a jam — including a high grade American Eagle model.





**Colt 45** auto of pre-WW II vintage has King gold bead front and adjustable rear sights-Note carrying clip pointed to by pencil.



**Smith & Wesson 357 Magnum**, 6"barrel. For the author, this gun proved faster in delivering first aimed shot than any of the automatics tested.

### **Cartridge Case Ejection**

The ejection of the empty cartridge case in the 45 Auto is more positive than that of the Luger. In the 45 the extractor is situated on the right side of the gun and the ejector diametrically opposite on the left. As the empty case is drawn back by the extractor the ejector bumps the case head at 9 o'clock (as viewed from the rear) which throws the case to the right and directly out of the port at 3 o'clock.

In the Luger the extractor is at 12 o'clock, the ejector is at 4 o'clock and the ejection port is at 12 o'clock, thus the case is thrown to the left against the frame and from there is caromed or bounced upwards and out of the port at the top. I checked this feature by placing a small mark of red fingernail lacquer on the Luger cartridge case, then carefully chambered the cartridge so that the mark was uppermost at 12 o'clock. Examination of cases so marked and fired invariably showed a deformation at the mouth of the case on the left side at 9 o'clock. Sometimes the deformation consists only of a slight flattening but usually the case is abraded as well.

Incidentally, contrast the Luger with the Colt Woodsman 22. In this pistol ejection is remarkably positive and one big reason for this is that the entire

area in the rear of the barrel is open at the time of ejection and the ejected shell has plenty of room in which to travel — no bouncing and no small port to find. Incidentally, I have had fewer jams with a Woodsman (prewar) than with the Luger. I keep the Woodsman action clean by wiping and brushing out every 200 rounds. This fine performance is a testimonial to the brilliant Browning design features of this pistol, handicapped as it is by having to handle a flanged cartridge which must be held low enough in the magazine so that the breechblock may pass over the flange. (Modern gun designers seem to have difficulty in appreciating this factor in gun design.)

### **Handiness and Carrying Safety**

Just a glance at the table (Handiness and Carrying Safety) will show that because of the complexities of the mechanisms involved there are subtle variations in speed even when safety is the same, and conversely there are subtle variations in safety when the speed in getting off first shot is the same; for example, considering the four principal classes of pistols:

#### **45 Automatic**

Double action automatic (S&W M39 Walther P38) This class is included here because it presumably obsoleted older designs. It is moot, however, whether this class is as advanced as it is supposed to be for few of these pistols are being sold.

#### **Luger**

Double action revolver (such as S&W Combat Magnum)

All of these can be carried at their fastest condition of speed (condition F, cartridge in chambers, hammer or striker cocked, no grip safety on) but because of the unique and efficient grip safety of the 45 auto, it is safer than its competitors. When these four pistols are carried with what is generally regarded as practical and common sense safety we then have the 45 automatic with cartridge in chamber and hammer down (condition B), the S&W M39 and Walther P38 with cartridge in chambers and hammer down (condition E), the Luger with cartridge in chamber, striker cocked, thumb safety on (condition C) and revolver with hammer down, but here the S&W M39 and Walther P38 and revolver have a big advantage in speed over the 45 and the Luger. But, many disagree with this equating of safety, feeling that the 45 should be compared when in condition D (hammer cocked, grip safety on), and then its speed is markedly superior to the Luger but only equal or less in speed than the revolver or double action automatic.

However, there are many who feel that even this comparison is not realistic because the 45 auto can be carried as a condition F (cartridge in chamber, hammer cocked, thumb safety off) and as stated before because of the unique grip safety speed is on a par with the best, but safety is adequate. It is noted that many contenders in recent “walk or draw contests” or “combat courses” use a 45 automatic and carry it in this fashion. Certainly the 45 can be carried with a wider range of safety conditions than any other pistol, thus suiting almost any criteria involving the combination of speed and safety; conversely the Luger is especially awkward because its safety is so located as to be difficult of access and moreover no grip safety is available on most models made in the past 40 years or so. It is evident that this awkward safety factor was a principal consideration involved when the Luger was replaced by the Walther P38.

## HANDINESS & CARRYING SAFETY

### Conditions of Safety of Handguns Tabulated in Order of Speed

HANDINESS & CARRYING SAFETY					
Conditions of Safety of Handguns Tabulated in Order of Speed					
	CONDI- TION	LUGER PISTOLE '08	COLT 45 M1911	S&W 357 MAGNUM	S&W M39 WALTHER P38
SLOWEST ↑	A	No cartridge in chamber, striker not cocked	No cartridge in chamber, hammer down		No cartridge in chamber, hammer down
	B		Cartridge in chamber, hammer down		
	C	Cartridge in chamber, striker cocked, thumb safety on	Cartridge in chamber, hammer at ½ cock		
FASTEST ↓	D		Cartridge in chamber, hammer cocked, thumb safety on	Cock hammer with thumb	
	E			Use double action pull	Cartridge in chamber, hammer not cocked, use double action pull
	F	Cartridge in chamber, striker cocked, thumb safety off	Cartridge in chamber, hammer cocked, thumb safety off, grip safety applies	Hammer cocked, no safety applies	Cartridge in chamber, hammer cocked, no safety applies

NOTE: All automatics are assumed to have loaded magazines; the revolver a loaded cylinder. After the first shot has been fired (per conditions of the preceding paragraph) I find both automatics

superior to the revolver for fast work at short ranges, say hitting a 12 plate at 20 yards; but in getting on to a small target, say a 12 plate at 100 yards, the revolver is again the best. In other words, then:

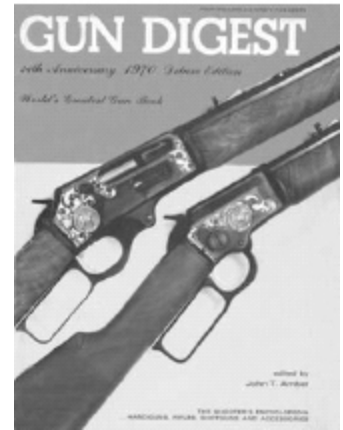
1. The revolver is fastest and surest for the first aimed shot, starting with gun in hand.
2. For succeeding shots at short ranges the automatics excel in the same areas.
3. For succeeding shots at long ranges the revolver is again the fastest and surest. In conclusion, it appears that the Luger as we know it is highly over rated — in no class of shooting is it outstanding — and mechanically it leaves a lot to be desired. All comparisons cited were made under conditions as nearly alike as possible, and the loads were: For the revolver — 38 Special (158 gr. at 855 fs). For the 45 Auto — target type ammo (185 gr. at 775 fs). For the 9mm Luger — standard military (115 gr. at 1140 fs).

### **Practical Speed of Shooting**

The previous sections dealt mainly with an appraisal of mechanical features of handguns which affect carrying safety and speed of getting into action from the holstered gun. But what about proficiency in catching aim and firing when gun is in hand, at the “ready” but not aimed? How about succeeding aimed shots at various ranges? In order to answer these questions I set up targets at various ranges, a 6” diameter steel plate at 20 yards, a 12” square steel plate at 50 yards and a 12” wide by 24” high steel plate at 100 yards. At various times during the year, with various light conditions, I found in testing the 357 S&W Magnum (regular model with 6” barrel), the 45 automatic and the Lugers (one a 30-cal. 4?” barrel American Eagle model, the other a 9mm military model of WW II), that the automatics were about equal but the S&W 6” Magnum was faster for the first aimed shot (the hang and balance of this gun being just about perfect). For this first shot, conditions of safety being ignored, the Luger has an advantage in “pointability” because the barrel is only slightly above the forefinger and is parallel to it, and because the grip is at a proper angle (not like a carpenter’s square). Unfortunately, this advantage is offset by the poor sights, skinny barrel, too light forward balance, and long, stiff trigger pull. The net effect is that the Luger is below the revolver and about on a par with the 45 auto for the first aimed shot — remember we are now talking about the gun being in hand ready to shoot and the only problem is to bring it up to aim and shoot. If the Luger were available with a 5” heavy barrel, 1/8” modern micrometer sights and a smooth 4½-lb. trigger pull, it would offer stern competition to even the revolver.

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1970



## The 38 Special-New life or last gasp for police use?

A pipsqueak load, says the author, with — at one and the same time — too much penetration and too little shocking, stopping power. There'll be those who don't agree, but ... ■ Jan A. Stevenson

**T**HE 38 SPECIAL is America's favorite centerfire handgun cartridge by such a large margin that comparisons become ludicrous. As a police service round, the 38 is the standard and standby of practically every North American police agency. True, a small handful of departments use the 9mm M39 S&W, the M1911 45 ACP, the 41 and 44 Magnum, but these few hardly make a dent in the 40,000-odd police organizations estimated operating in the U.S. most of whom require it to the exclusion of all others.

Additionally, it is the nearly unanimous choice of private police and security agencies, guards, couriers, armored transportation agencies, many branches of the military, householders, storekeepers, and practically everyone else who carries a handgun for defensive purposes.

Thousands of target panners will use nothing but the gilt-edged accurate 38 for centerfire competition. And finally, far more 38 Specials are reloaded annually than all the other pistol and rifle cartridges combined.

With such an enthusiastic following, and such long established acceptance, it would seem that the eternal popularity of the round would be as universally recognized and unchallenged as the 10 Commandments. So it oft en seems.

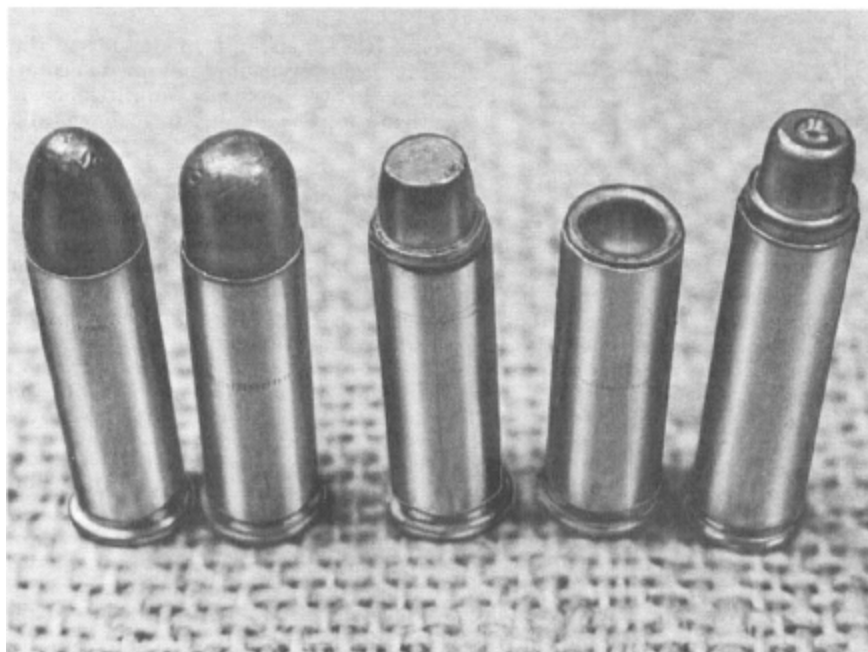
Admittedly, the 38 has a lot going for it. If you are shopping for a gun, the weapon you want is chambered for the 38 Special, whether it be a flyweight, snub-nosed belly gun small enough to be concealed in the palm of your hand, or a 3-lb., foot-and-a-half long, scope mounted hunting pistol, or a super-accurate target automatic.

If you buy your ammo over the counter, with no other caliber do you have as wide a choice of loads as with the long-time favorite 38 Special. Approximately 15 different factory loads are available, ranging from blank cartridges to wad-cutters, with just enough power to drill a clean hole in a paper target, to high velocity armor-piercing rounds.



**The 38 revolver**, rejected by the Army in 1904 as too ineffective for combat use, is to be found today on the hip of practically every cop in the country. Police experience over the past 50 years proves the Army was

right. 38 Colt Official Police (bottom) compared to the gun it replaced, the 45 Colt New Service. The New Service was the standby of such hell raisers as the Border Patrol. The Canadian Mounties stuck with it for 13 years after it went out of manufacture. Note difference in size of the 38 and 45 cartridges.



**All Specials** — Far left, the standard 158-gr. round-nose service loading — a notorious pipsqueak. Next, the 200-gr. blunt-nosed “Super Police,” an over-rated round. Last three cartridges are attempts to get the 38 on its hind legs. Square-shouldered bullet (center) gives good shocking power, penetration for car bodies. Cup-point bullet expands immediately, minimal penetration. Best for urban use, but generally taboo for publicity reasons. Square-shoulder hollow point (right) is excellent compromise.

If you reload, no other cartridge offers so many convenient possibilities. Brass is always plentiful. The cartridge is a wonderfully flexible one with which to work. It contentedly gobbles up every powder in the book from ultrafast burning Bullseye to slow simmering 2400 rifle powder. Swaged bullets, ready-cast bullets, and dies or molds for making your own are available in endless profusion. The round can be loaded down to be less objectionable than a 22, or upward to equal 357 factory ballistics. Plastic or wax bullet loads are readily gotten.

Police instructors love the 38, because it is superbly accurate, and its mild recoil makes it easy to train recruits with. It has been hailed as “the perfect pistol cartridge.” Indeed, the 38 Special is more popular than the Beatles.

With a set of qualifications like this, badmouthing the 38 Special sounds about as level-headed a thing to do as objecting to the institution of motherhood. Yet a lot of level-headed people are doing it these days — the former, not the latter.

Forty years ago, Elmer Keith was almost alone in proclaiming what knowledgeable police firearms men are now coming to recognize — that as a police cartridge, the 38 Special stinks. Back about the turn of the century, A. C. Gould, writing under the pen name, “Ralph Greenwood,” was a voice in the wilderness editorializing against the pipsqueak round. He was in good company with such combat seasoned officers as U.S. Cavalry Lt. Eben Swift, and the British empire-taming army officers, Maj. Gen. H. E. C. Kitchener and Lt. Col. G. W. Fosbery, V.C., of the Bengal Staff Corps. But no one was listening; least of all America’s police, who were busy climbing on the 38 Spl. bandwagon.

In a few instances, the adoption of the 38 was a step in the right direction. New York City, for instance, known as one of the world’s finest departments, used the 32 before they got in step with the times.

For most agencies, though, the switch to the 38 was a great leap backwards, to borrow a phrase from pseudo-political scientists. The U.S. Border Patrol, as gun savvy an outfit as ever enforced the law, used M1917 45 revolvers until, sometime in the 1930s, they decided to swing with the times. The New York State Police, in the late 40s, abandoned the 45 Long Colt when they made the changeover.

The last outfit to toe the mark was the renowned Royal Canadian Mounted Police, who reluctantly turned in their old glory-encrusted 455 New Service in 1954 — thirteen years after the weapon went out of manufacture. It was a sad day for the student of police ordnance when the Mounties buckled on the insignificant looking 38s. Compared to the hoary old New Service, the shiny new M&P seemed a slender reed with which to *Maintien le Droit*.

How did we get stuck with the abomination in the first place? In retrospect, it seems like a prime case of group feeble-mindedness — a cruel melange of follow the leader and blind-man’s bluff, the results of which



unnecessary game has been the death of many a fine officer in the line of duty.

The Army, spurred on by Cavalry Col. Elmer Otis, started the trend to the small bore handgun in April, 1892, when they adopted the 38 Long Colt.

However, the forthcoming Philippine Campaign of 1899–1901 proved in gory and incontrovertible fashion that, as a manstopper, the 38 was a fraction better than hopeless. Posthaste, the Army ungreased a quantity of old single action 45s sitting in stateside storage, and shipped them out to the Philippine field units. After their arrival, there was a marked reduction in the number of headless officers to be crated up after each engagement.

As far as the Army was concerned, that did it. The famed Thompson-LaGarde Committee was convened to analyze the elements of stopping power in handgun cartridges, and their report, submitted in March of 1904, recommended that no pistol round of less than 45 caliber be considered. The conclusion was a sound one, and the Army has yet to budge from it. The current service automatic, Model of 1911A1, was adopted shortly thereafter in 45 caliber as a result of the Thompson-LaGarde Report.



**The two** up-and-coming rivals to the 38 as a police service arm are S&W's new 41 (top) and Colt's old Government Model 45 automatic (bottom). Colt's 38 Official Police shown center for comparison.

That the U.S. Air Force issues 38 Specials in some numbers doesn't alter the basic facts. The U.S.A.F. has for long been concerned with ultra lightweight arms — unduly of lives, as witness the debacle with their aluminum-cylinder, small-frame revolver.

Meanwhile, back in the States, Smith & Wesson began diddling around with the discredited 38 Long Colt cartridge. The bullet weight was increased from 148 to 158 grains; the powder charge was upped from 18 to 21 grains of smokeless powder. This raised velocity from 785 feet per second to 870 fps, and muzzle energy from 205 to 266 foot pounds. The result was christened the "38 S&W Special."

By any logical evaluation, the improvement in performance was negligible, but for some incomprehensible reason, the nation's police decided that the new round was the total answer, and the rush was on.

The current 38 Special load with 158-gr. round nose lead bullet is even less potent, while the 1090 foot second load — using the same weight bullet — is not, I believe, in general police use. In any case, this faster load would produce gross over-penetration, an aspect already in bad odor.

The lessons of the Philippine campaign were forgotten, if they were ever considered, and the findings of the Thompson-LaGarde Committee went unheeded. Most surprising of all, no collection and statistical analysis of evolving data on cartridge performance was undertaken for the next 60 years.

Even the FBI, a sage outfit which commands the respect — or perhaps awe of even its most vehement and intractable critics, the organization which has been responsible for the steady upgrading of police training in this country, and who were first to institute training of officers under combat conditions, a crew always in the lead in availing themselves of the means of physical science in police work, never bothered to organize or study the available data on the combat performance of handgun cartridges. The FBI issues the Colt OP, 4" barrel in 38 Special, perhaps the 38 M&P as well. Their regulations permit the 357 Magnum, and back in the 30s they were a popular arm with the FBI. Nor did the FBI, so far as I can learn, make a formal study of the conditions prevailing in armed encounters

between officers and felons. If they did, I couldn't run it down, and I dug extensively.

Because of this strange disinclination to consider or believe the results of the military's experience or tests, because of this disinterest in studying the problem from the viewpoint of statistical analysis, because police combat is a fragmented and widespread affair, and it has taken half a century for the cumulative weight of individual tragedies to force themselves into the general consciousness, the love affair with the 38 Special continued unabated until it was the standard of nearly every department in the country.

Only the unheeded John the Baptists mentioned earlier, together with a few knowledgeable and experienced officers, continue to rock the yacht. In 1959, however, Professor Allen P. Bristow, a former Los Angeles County Sheriff's Deputy, and later of the Department of Police Science at Los Angeles State College, undertook an organized study of cases in which an officer was shot in the line of duty. His report was released in 1961, and appeared in the highly respected Journal of Criminal Law, Criminology, and Police Science. It created an immediate ruckus.

Actually, Bristow hadn't intended to consider cartridge effectiveness at all. He was interested primarily in tactical studies, but the data he assembled forced him to conclude that the police use of the 38 Special cartridge was a primary causative factor in officer fatalities.

Typical of the cases Bristow discovered is the following:

At 1:25 AM, an officer forced the suspect, who was driving a stolen car, to the curb; in the following hoopla, the suspect was shot 4 times with the officer's 38 Special, before escaping down an alley on foot, having wounded the officer in the meantime. The suspect was shot through each arm, solidly through the right side, and sustained a flesh wound at the base of the rib cage.

At 2:10 AM, the same suspect robbed a motorist whom he had just forced from his vehicle, but had to flee from the scene on foot before he could make off with the automobile. He was spotted 20 minutes later in a field two miles from the scene of the original shooting, and was again chased by officers on foot, but eluded them.

At 3:00 AM, the same suspect stole a car and was busily engaged in covering ground when he was spotted an hour later by a state patrolman. There followed a 30-minute high-speed chase which ended when the suspect wrecked the car. The suspect crawled out of the wreckage, and

high-tailed it for the woods with the trooper hot behind him. When the suspect whirled to fire on the trooper, he was felled by a single 357 Magnum through the head from the state patrolman's service weapon.

In another case, a suspect who had just killed an officer was shot 5 times in the center of the chest at off-the-muzzle range by a second cop's 38. The suspect fell to the ground, as was seemly and proper under the circumstances, but when the officer turned his back to minister to his partner, the suspect stood back up and started shooting again. Five 38s in the chest killed him eventually, but they didn't stop him when he should have been stopped. And that is the purpose of a police sidearm — stopping a sequence of actions immediately.

Killing is not the job of the police, it is a function of the courts. That police bullets kill is simply a regrettable side effect. Their purpose is to stop whatever action forced the officer to shoot in the first place. If the suspect does not stop what he is doing when shot, the police cartridge has failed its duty, and if that failure costs the life of an innocent person, or of the officer himself, then that failure is doubly a tragedy.

This is the kick with the 38 Special. It's a great cartridge, but depending on it to stop a determined man is rather like trying to turn back a gale wind with a windowfan. You will notice that most of the advantages we listed for the round at the beginning of this article are purely matters of convenience stemming from the 38's widespread and unwarranted popularity. A lot of people buy 38s. Hence there is a wide range of weapons available from which to choose. The same reason holds true for the choice and availability of many types of loads and components.

We've said other good things about the 38 Special, but we can't say it's a man-stopper, at least not the way the factory loads it; and if it's not a man-stopper, it is logically not what the police need.

This then is the problem facing every thinking police firearms specialist in America today. Should the department face up to the facts, scrap the 38, and shoulder the burdens involved in adopting a round with more slap-'em-down spunk?

The problems this courageous course of action would entail (not considering that all important one of finances) present themselves in plentitude. Training officers to handle heavier guns is a problem: it's no use adopting a round if it results in a serious decline in practical accuracy. Usually the recruit is expected to reach minimum proficiency with a big

bore on the same amount of training expended on the 38. Thus both training and ballistics are involved. Let's look at the 41 S&W. The low speed 41 load's recoil is only a bit less than the 357 gives, both fired in equal-weight guns.

Handloading is the answer, and no department can provide adequate training in any caliber with factory ammunition.

True, the officer should be able to handle full-charge factory service ammo. Our best departments give 50 hours of intensive firearms instruction, and require every officer to fire at least 500 rounds a year to qualify. Some departments train even more extensively. Professionals like these will turn in a creditable performance with any service sidearm, and need only a cartridge that does its share of the job.

However, many departments train rarely, if at all. A 20-man force was recently found with 4 guns that would not fire, one frozen shut by rust! Such departments, invariably armed with 38s, are a hazard to all. Happily, their number diminishes each year.

Educating officers to lug more iron is a problem that inevitably follows the adoption of a heavier sidearm.

It is a serious step for the department to undertake, this ditching of the inefficient old slingshot. More and more police agencies, though, are taking the plunge. On the west coast, a number of departments have gone so far as to abandon not only the unreliable 38, but the revolver itself, and have adopted that old tried and proven battle-ax of many wars, the 45 Automatic.

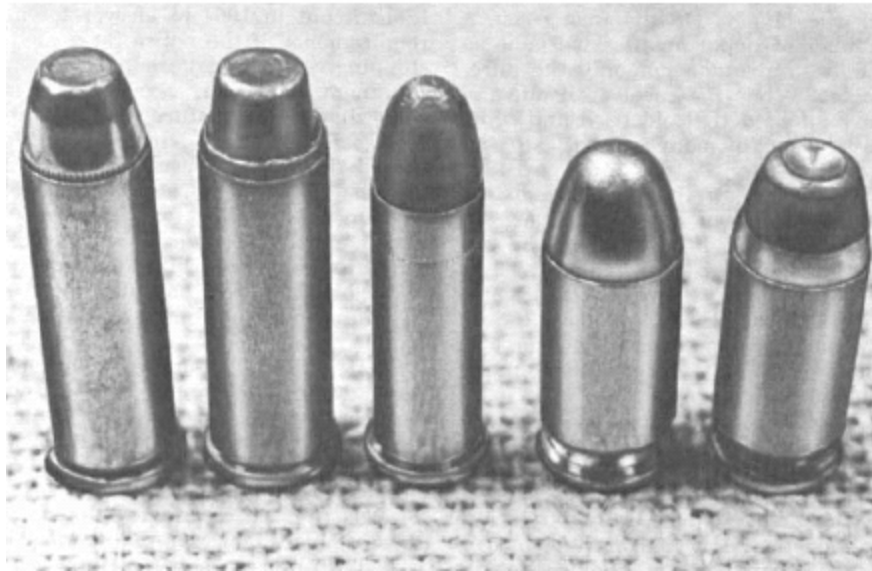
This shows a refreshing appreciation of the lessons of long combat experience, and was brought about by the very enlightening reports of a vociferous little group known as the Southwest Combat Pistol League, a coterie of combat-competition hobbyists who number among their members many Golden State lawmen.

League competition over the past decade has proven beyond much doubt that in the hands of a highly trained man, the 45 Auto is with out peer as a combat handgun. Whether it is the answer to the needs of the police is still a moot question, and the rest of the profession will be observing with interest the practical experiences of those pioneering departments that have adopted the old warhorse.

Amarillo, Texas, was the first of a number of departments to adopt the new 41, which Smith & Wesson brought out in 1964 in answer to the requirements of the police for a man-stopping cartridge tailored specifically

for them. However, Smith's was a somewhat timid venture, and the offering to date is hardly versatile enough to proclaim itself as the final answer. For instance, the lightest weapon Smith offers weighs in at a rather portly 41 ounces, when compared to the 35-oz. displacement of the average service 38. It's bulky too, being built only on Smith & Wesson's big N-frame.

That "mere" 6-ounce difference doesn't sound like much, but it is noticeable hanging on the belt, loaded as the latter is with department gadgetry.



**38 Special** (center) with contending 41 rounds at left, 45 autos right. 41s and 45s give good knock-down punch with out necessitating use of hollow points — also give healthy recoil. 41 Magnum (far left) is a rip roarer (210-gr. bullet at 1400 feet per second — almost twice the 38's velocity. Standard 41 is more sedate. 45 comes in hard ball (4th) and expanding (5th).

There is another objection too, as regards the two cartridges offered for this revolver. The Magnum loading is a real rip-roarer — a hot, highly accurate round, and excellent for its purpose. The milder "city" load is also excellent, though a bad bore leader if enough rounds are fired with out cleaning.

The hitch is that even the lighter of the loads recoils too much for training purposes, or for general use in an as yet unobtainable lighter weapon, though mass reloading equipment is available for this round. However, if it is brought out on Smith's lighter K-frame in a 5-shot version,

and a third and less emphatic cartridge is offered, it will be the hands-down obvious answer to police needs that it was intended to be.

For such a weapon I would favor a 200-gr. or lighter semi-wadcutter bullet as slow as 700 fps even — anything that was comfortable to fire. Such a weapon would be comparable to the 38 only in ease of portability. It wouldn't be much on penetration, but stopping power should be excellent. You'd have, in addition to a heavy bullet of proper nose configuration, all that additional cross-sectional area working for you, transmitting maximum impact energy to the target.

Smith & Wesson offered, until recently, a number of other man-stopping sidearms which, although on the big frame, are light enough not to be objectionable on the hip. These are the 44 Special, and the 45 Auto rim. The fine old 45 Colt is no longer available in a practical double-action weapon, either.

Many departments recognize the deficiency of the 38, but are unwilling to junk the old pipsqueak for one reason or another. Sometimes their reluctance stems from a fear of innovation, an unwillingness to grapple with the problems a change of calibers would entail, or a sheer ignorance of the ballistic behavior of large bore handguns and bullets, and a groundless apprehension of them.

Oft en the reasons for retaining the 38 are more laudable than these, such as an awareness of the financial, training, and logistical problems involved, and a belief that the 38, in the long run, is still the best gun for the cop.

These departments concede that the 38 Special in its standard service loading, is a farce as a manstopper, ricochets badly, and overpenetrates, with the danger that an innocent person on the other side of the target will be hit. On the other hand, they contend that with proper loads, these faults can be cured, resulting in a weapon-load combination far better suited to police duty than any big-bore.

Some advocate that the 38 be replaced by the 357 Magnum, which offers the advantage of firing 38 ammunition for practice, as well as heaving some excellent armor-piercing projectiles for roadblock or barricade tactics.

The standard 357 Magnum load is a pretty good manstopper. On the other hand, it's a real hollering horror on penetration, which is a disadvantage, and it recoils as fiercely if not more so than a big-bore, so the training problem is no more easily resolved (save by the availability of 38

ammo) than with the large caliber weapons. To top it off the 357 can be a really intolerable bore leader.

Having ruled out the 200-gr. round nose 38 load, and the 357 Magnum option, what then can be done with the 38 Special to make it an adequate round for police use?

Obviously, we have to achieve maximum stopping power with minimum penetration and recoil, and the way to do it is to up the velocity and use light, pure lead, semi-jacketed bullets with wide cavity hollow points, cup points, or hydraulic expansion mechanisms built in, or else depend on extremely high velocity to expand a solid slug with out assist from an expansion-inducing nose configuration.

Yet here we tread on tender toes. Super-expanding bullets for police — dum-dums if you will! There is no reason, legal, moral, or tactical not to use them; their employment will save the lives of officers and innocents who might otherwise perish — sacrificed on the cruel altar of bureaucratic timidity. But it cannot be gainsaid that super-expanding bullets are potential dynamite for anti-police propagandists.

Nevertheless, the department which opts to retain the 38 has little choice, if it recognizes its moral obligation to its officers and the public, but to continue the already substantial amount of experimentation with expanding 38s that has been carried out by private parties, and to eventually consider adopting them.

Probably the most impressive formal research into the use of expanding bullets undertaken to date by an enforcement agency is that of the Phoenix, Ariz., Police Department.

Contrary to the norm, the Phoenix program was brought about not by their dissatisfaction with the 38's stopping power, but because of its excessive penetration. An officer was forced to fire on a felon, and did a good job of it, keeping all his shots squarely on target. However, the 38s zipped right through, felling a window-shopper on the next block.

THE PHOENIX PROGRAM WAS BROUGHT ABOUT NOT BY THEIR DISSATISFACTION WITH THE 38's STOPPING POWER, BUT BECAUSE OF ITS EXCESSIVE PENETRATION. AN OFFICER WAS FORCED TO FIRE ON A FELON, AND DID A GOOD JOB OF IT, KEEPING ALL HIS SHOTS SQUARELY ON TARGET. HOWEVER, THE 38s ZIPPED RIGHT THROUGH, FELLING A WINDOW-SHOPPER ON THE NEXT BLOCK



This caused some consternation down at headquarters, and the Phoenix brass-hats determined to load them up a 38 that would stay in the target. This either means dropping velocity still further, making the 38 scarcely more emphatic than a threat, or else, as Phoenix chose to do, upping the velocity to near sonic speed to ensure expansion of soft lead, and adopting a bullet designed to expand in the target, with its concomitant risk of ill publicity.

The chief down there is a cautious man, and in order to build an irrefutable case for the department's new cartridge being the last word in the public's best interest, an impartial, blue-ribbon panel was chosen to conduct the tests. Members were Capt. Gordon Selby of the Phoenix Police, one of America's top combat shooters; a lieutenant, a sergeant, and two crime lab technicians from the Phoenix Police; Ben Avery, outdoor editor of the Arizona Republic, and Pete Brown, arms editor of Sports Afield magazine.

This illustrious panel of experts, following the extensive tests, suggested that the Phoenix police "adopt a high-velocity cartridge with a bullet designed to mushroom on impact." The department did just that, turning to the Super-Vel Cartridge Corp. (Shelby ville, Ind.), as have 300 other police units.

Super-Vel produces ammunition in four calibers (9mm to 44 Magnum), but most popular are their improved 38 Special loads. The Super-Vel 158-gr. semi-wadcutter is a tremendous improvement over old-school loads, but the one that really breaks with tradition is the 110-gr.  $\frac{3}{4}$ -jacketed bullet (solid or HP) at 1370 fps. These disrupt violently when they hit, field and test reports confirming their ample stopping power. These put the final cure on the over-penetration problem.

This then is the painstaking course which must be followed if the department insists on making the 38 perform as it must, and would still protect itself from the specter of unjustified public condemnation.

As an indication that something along these lines must be done if the 38 Special is ultimately to survive as a police cartridge, experimentation similar to the Phoenix program is being carried out all over the country, either formally by department arms units, or informally by individual officers and private experimenters.

An increased knowledge of terminal ballistics, or the action of the bullet with in the target, is the result, and this can only be to the good. However

the danger is (and it's a very real danger) that through poorly conducted, inapplicable experimentation, a body of misconceptions will be established resulting in the adoption of a cartridge that will not behave in combat as expected.

Usually, the result will be overpenetration, a la 357 Magnum, and the reason is that the medium chosen for terminal ballistics studies does not duplicate human flesh.

Let's face it — cops are human, and in none of them does the scientific zeal for accurate data overcome a very strong, normal, natural, warm, and emphatic human squeamishness. No police unit in the country has the desire to do things as thoroughly and impassionately as the Thompson-La-Garde Committee, and conduct firing tests on live steers in slaughter houses, and on suspended human cadavers. Yet, there is no way to pass the buck and get the Army to test the loads in battle zones, because expanding bullets are militarily taboo since the Hague Accords.

So we're back to the firing range, and the results are ludicrous. One experimenter tests his bullets in "dry, clean playground sand." Another uses moist sand. Why? No one knows. It's meaningless. Other popular mediums for test firing are moist clay, modeling clay, and "wetpack" — compressed, waterlogged phone books and newspaper. Criminals are made of none of these. Nor do criminals resemble steel drums filled with water and tightly capped.

Firing into substances such as these is an interesting game, and good for comparing the conduct of one bullet with another. But to say that the results will predict the action of a bullet in flesh is a farcically naive approach.

The only way to compile predictive terminal ballistic data, other than the long term project of studying the results of ensuing individual police combat affrays over a period of decades, or by hunting light game with test bullets and performing field autopsies after it is felled, is to conduct range tests with a target medium more closely resembling flesh than those above.



**The old 45 auto** is getting a lot of attention from police these days. Plenty of fire-power and a slap-em-down cartridge — two virtues the 38 Special lacks.

Commercial arms plants usually conduct their bullet expansion tests on blocks of gelatin compound, and if the police intend to precede the adoption of expanding bullets by a body of scientific data that will with stand criticism, it's time they got serious and did likewise.

The next few years will bear watching. That the 38 Special is virtually ineffective and was a bad bill of goods from the start has been well-proven and is no longer a matter for serious discussion among knowledgeable police firearms specialists. What to do about it is.

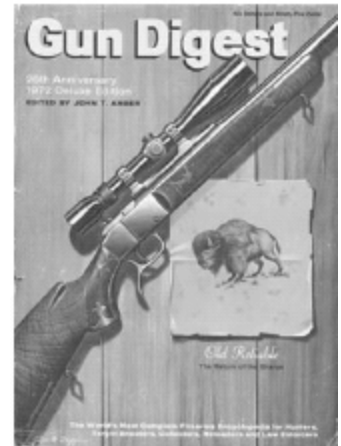
Foreign ammunition makers such as the Swedish Norma Projektilfabrik and the Canadian CIL are already marketing or are considering introducing high velocity 38s with improved bullet designs, and there is some experimental stirring about in the large American plants. Custom ammo loaders, and new commercial operations such as the Super-Vel Company, are doing a booming business in expanding bullet, hot-loaded 38s. Cautious

but intense experimentation by police agencies across the country is becoming more and more the thing.

The result of all this will and must be that either the 38 Special, that notorious old pipsqueak, now in its second half-century of service, and until now all but unchallenged, will come up with the goods and gain a new lease on life, or else it's breathing its last, unlamented senile gasps, and will soon be buried alongside the image of the Keystone Cop. May they both rest.

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1972



## Today's Made-in-Spain Pistols

Time was when Spanish auto pistols were — not to put too fine a point on it — junk. Not so now, for Astra, Star and Gabilondo are of good fit and finish, they are accurate and reliable. ■ Major George C. Nonte, Jr.

**T**HE SPANISH arms industry has a long and illustrious history. Who hasn't heard of Toledo blades? With the coming of modern handguns at the turn of the century, business really began booming in the areas around Eibar and Guernica. Those northern Spain centers gave birth to all manner of small and large companies busily engaged in the manufacture of automatic pistols — not to mention copies of U.S. revolver designs.

The total number of firms involved probably cannot even be determined nor, oft en, can existing guns even be traced to the original maker. Competition usually improves the breed, but in Spain it had the opposite effect. By the 1920s the quality of Spanish handguns was generally considered about the worst in the world. A few firms made good quality arms, as can readily be ascertained by examining the products of Unceta, Gabilondo, and Echeverria. But there were scores of other makers of guns

so crude they've been known to come apart with mild factory loads. Most were poor copies of basic Browning or similar designs, roughly finished and sloppily fitted and assembled.

A great deal of this may be traced to so-called "Cottage Industry" practice. Small shops, often in a home, indifferently filed and finished (?) rough castings and forgings supplied by one maker. Another shop might take barrels from one maker, slides or frames from another, small parts from somewhere else, and assemble guns. Virtually no control existed over tolerances or quality.

Somehow, it seems that the worst of the Spanish autos found their way to the U.S.A. By the mid 1930s, they were so poorly thought of that even a fine Spanish pistol was hard to give away. It is unfortunate that the same attitude still exists to a large degree. The virtually uncontrolled system that produced the bad pistols was not permitted to operate so loosely after the bloody Spanish Civil War. Whatever you might think of Francisco Franco otherwise, he did clean up the Spanish arms industry. Iberian handguns of today are of good quality, and have been for quite a number of years. Only Star, made by Bonifacio Echeverria; Babilondo y Cia. (both of Eibar) and Astra Unceta of Guernica now produce automatic pistols. The latter two also produce revolvers, but we'll not dwell on them here.



All three companies suffered considerably during the Spanish Civil War. Most records were destroyed so it is difficult to determine exactly what

went on prior to about 1939–1940. In some instances, specific models exist, but absolutely no information on them is available at the factories.

At least some models of each make are currently distributed in this country and can be bought across the counter — the new law of the land permitting! In addition, the past decade has seen many thousands of surplus military pistols of all three makes sold here at attractive prices. This prompts many questions by shooters who have been told “Spanish pistols are no good.” So, let’s take a brief look first at the three firms, and later a review of the frequently encountered models.

Astra is the trade name of Unceta y Cia. The firm, founded in 1908, at first produced only pistol parts for other makers. In 1912, it began manufacture of the new Campo-Giro 9mm pistol for the Spanish army. These guns were superbly made, establishing a level of quality adhered to in Astra products from that time onward. I’ve examined dozens of Astra specimens made in the 1920s, 1930s, and 1940s, and they invariably show very fine workmanship throughout.



**Astra M-600**, in 9mm Parabellum, is a development of the M-400 in 9mm Largo. The M-600 was supplied in quantity to the German government during WW II.



**Astra M 3000** was chambered in 7.65mm (32 ACP) and 9mmK (380 ACP) calibers, several thousand of the latter were delivered to the German government during WW II. The M-4000, shown here, is designated the Falcon but not imported here at present.

Model	Cal.	Mag. Cap.	Wt./ozs.	Lgth./ins.	Bbl./ins.	Price
Cub	22 Short	6	13	4½	2⅞	\$39.95
Cub	25 ACP	6	13	4½	2⅞	39.95
3000	32 ACP	7	22	6¾	4	
3000	380 ACP	6	22	6¾	4	
Constable	32/380 ACP	7	23	6⅝	3½	

**The 5 models** listed are in production, but only the Cub models are available

Unceta produced many other models over the years, but the name Astra has become virtually synonymous with the tubular-slide Model 400 (also known as 1921 Military Model) developed from the Campo-Giro. Many Browning-type 6.35mm and 7.65mm blowback pocket pistols were also produced — some of them under other names, principally Victoria.

Unceta has prospered and today produces excellent pistols, some models of which are distributed by Firearms International. See our Directory pages for addresses. It also has the distinction of producing the 25 ACP automatic sold as the Colt Junior. This in itself speaks highly of modern Astras.

Gabilondo y Cia is another old-line firm, founded at Eibar in 1904 to produce revolvers. Not until 1914 did it begin making auto pistols, a move which brought it good fortune. The Ruby 7.65mm blowback pocket pistol of basic Colt/Browning design, was the first to be produced. It proved



immediately popular, being reliable and well made. The French army ordered great quantities of Ruby pistols for WW I use, demand eventually reaching 30,000 per month. Gabilondo couldn't meet the requirement so they contracted with several other firms to produce the guns under the Ruby name. Eventually, about a dozen companies produced Ruby and Ruby-type pistols. These guns were not always up to Gabilondo standards and account for the derogatory remarks sometimes heard about Ruby pistols.

Following WW I Gabilondo produced well-made copies of the FN/Browning M1910 pistol under the names Ruby, Bufalo, and Danton. Copies of the Browning 6.35mm pistol were also produced, but in 1931, the larger-caliber Colt/Browning locked-breech guns were closely copied and produced under the Llama name. This continues today. These same guns were also produced by Gabilondo under the names Tauler and Ruby. All were well made and samples I've examined performed quite well.

Star Bonifacio Echeverria apparently began producing automatic pistols in 1906 or shortly thereafter. Early records were destroyed during the Spanish Civil War. The first guns were apparently 6.35mm and 7.65mm pocket pistols of conventional design. A 9mm (380) design was added later.

Star importance began to rise when, about 1919, it decided to market an improved version of the Colt/Browning locked-breech M1911 design. The locking system was copied accurately, but the firing mechanism changed entirely. The models 1920, 1921, and 1922 culminated in the Model A, which was widely sold in Latin America in 9mm and 45 caliber. This very good basic design is still produced today in the re-styled models S, P and M, and the super S, the current Spanish service pistol. The Star locked-breech pistols all show very fine workmanship, especially the Model B 9mm guns made during and after WW II. The extensive line of Star pistols is distributed here by Firearms International. The 5 models listed are in production, but only the Cub models are available.

### **Astra Models**

Through the wartime destruction of records Astra Unceta y Cia. can't say precisely what models and quantities of pistols were produced before the 1930s. The original firm, Esperanza y Unceta, was formed in July of 1908 by an arms dealer of Eibar, one Perdo Unceta, and Juan Esperanza, a merchant of hardware and other things.

Parts for pistols assembled by other makers were the first products, followed by the Victoria pocket pistol which closely copied post-1900 Browning 25 and 32 models. In 1912, a move was made to a new plant in Guernica — necessary because additional facilities were required to produce the newly-adopted M1913 Campo-Giro 9mm Largo (Long) pistol for the Spanish government. Campo-Giro production solidly established the new firm, and its pocket pistols were widely distributed, also under such other names as Leston, Sat, Museum, etc.

The trade name “ASTRA” was registered in 1914, though probably used before that date. Other, but conventional, pistol designs were produced. During WW I, some 150,000 7.65mm Browning-type pistols were furnished to the French and Italian armies.

In 1921, the Astra M400 replaced the Campo-Giro as the official Spanish service pistol; from then until 1946, some 105,000 units are reported to have been produced. This was an unusual blow-back design chambered for the 9mm Largo cartridge and was essentially an improvement of the Campo-Giro developed by Astra. Cartridges of such power are not generally considered suitable for use in blowback designs, but the M400 proved entirely satisfactory.

The basic M400 design was scaled down and modified to form the M300 (300/1,2,3,4) in 7.65mm and 9mm (380) calibers in 1922. In 1944, an improved version was designated M-3000 and continued in production. During this time, several models based on modified Browning designs were produced in large quantities. By the end of WW II, these encompassed the M200, M100 Special, and others of which little record remains.



(Right) **Latest Astra** model is the Constable in 7.65mm. Outwardly it is quite similar to the Walther PP and PPK, but it is much different inside — valuable double-action first shot capability and the hammer can be safely lowered on a chambered cartridge.



(Left) **Astra Cub** is a development of the original external-hammer version of M-200. Currently sold as the Colt Junior, as well as under its own name, it is available in 22 Short and 25 ACP.

During the latter part of WW II, until 1946, approximately 60,000 M600 9mm Parabellum pistols were produced for foreign sales. This was the basic M400 slightly redesigned and made smaller to handle the 9mm Luger cartridge. These guns were very well made. They were followed by limited production in 1958–1960 of an exposed hammer version called the Condor and intended purely for civilian sale. Only 6400 Condors were produced, according to recent correspondence with Astra; they are, however, vague about whether production has permanently ceased.

By the mid-1950s, the old M200 had been superseded by the Astra Cub and Firecat, available in 25 ACP and 22 Short calibers. Both were modified Browning designs, the former with exposed hammer. Variations within models were produced. The M3000 was available in 32 and 380 ACP.

In 1957, the Firecat was revised slightly and has since been manufactured in Spain for sale by Colt's as the Colt Junior in 25 ACP and 22 Short caliber. It replaces the old Colt 25 Pocket Model discontinued in 1946.

At the present time, a few Astra models are available in this country: the Colt version of the Firecat mentioned above and the Cub imported by Firearms International. The 32 and 380 M3000 (now designated Falcon)

and the new double-action Constable are in production but not generally available here.

All current Astra models are listed in the accompanying table. Workmanship is good in these guns. Personally, I'd like to see the remaining models available in this country.

### **Gabilondo Models**

Perhaps prompted by the apparent success of Star, Gabilondo introduced in 1931 a near-copy of the Colt/Browning M1911 pistol. Initially this gun resembled the Star more than the Colt and had the solid backstrap of the former and a modified firing mechanism. Some such guns were marked RUBY. It apparently became evident that if copying were to be done, it would be best to copy the highly-regarded Colt, and to do it accurately. This was during the time when the reputation of Spanish pistols was gathering speed on the downhill slope. "Just another Spanish gun" wouldn't be enough.

Consequently, the Colt 45 Government Model was copied line for line, measurement for measurement — so well, in fact, that oft en (not always) Colt parts will interchange. The name Llama was chosen for the new line, which was produced in 9mm Long, 38 ACP, and 45 Auto calibers. Minor variations were produced. For example, the Llama "Extra" barrel was approximately ½" longer, the slide 3/8" longer, than the Colt — leaving the barrel protruding farther from the bushing. Even so, a Colt barrel and slide could be fitted to the Extra. On some variations the grip safety was deleted, and the internal extractor replaced by an external claw let into the slide.



**Gabilondo Llama** series in 45ACP and 38 Super Automatic directly copies the Colt Govt. Model 1911-A1. (Right)



**Llama 9mmK** (380 ACP) is a reduced-size version of the big 45 and 38 pistols. (Right)



(Left) **Llama models** identical in appearance to the 380 series are available in 32 and 22 RF calibers, but function as unlocked-breech, blowback actions.

One Senor Tauler, large arms dealer of Madrid, ordered large quantities of Gabilondo/Llama pistols marked with his name. These guns are sometimes thought to be another make, but were identical to Llamas being made on the same assembly lines at the Gabilondo plant. They are usually marked “Tauler Mark P” on the left side of the slide, with “Military & Police” on the right. Usually the manufacturers name appears somewhere on the gun, subordinate to “Tauler.” Some identical guns are reported to be marked “Ruby,” but I’ve not examined a sample.

Primarily for export Gabilondo developed a smaller lighter pistol — the “Llama Especial” — in 9mm Parabellum caliber. It resembled the Star more than the Colt in that the back-strap was solid, deleting the grip safety. The trigger was pivoted, modified lockwork was fitted, an external extractor was used, and the hammer was rounded and pierced a la Colt Commander. I used an Especial extensively in Europe and found it an excellent gun. It was available in the 1950s in this country through Stoeger Arms, but no longer. This model was also made and marked “Mugica” for an Eibar arms dealer, one Jose Mugica.

The basic Colt/Browning copies remain in production today. Following WW II, Gabilondo introduced a 2/3d-scale version of the big autos, chambered for the 380 ACP cartridge. Mechanically identical to the 38 and 45 guns in every way, it is designated here as Model IIIA. The 32 ACP

companion Model XA is identical in appearance to the IIIA, but dispenses with the locking system. It functions as a fixed-barrel, blowback design. An identical Model XV in 22 Long Rifle caliber is also made.

Also, since the war, small Browning-type blowback pistols in 22 Short and 25 ACP have been introduced as the Models XVII and XVIII respectively.

During the early 1960s, ventilated ribs were incorporated into the slides of all Llama models made for U.S. sale. Also, “accurized” versions of the 38 and 45 guns are now made. Called the “Match” model, they incorporate target-type adjustable sights and are carefully hand-fitted for maximum accuracy.

### **Star Models**

Prior to the 1920s, Star pistols were all of elementary blowback design, chambered for the small 6.35mm, 7.65mm and 9mm short cartridges. In 1920 they introduced a large-caliber, locked-breech gun of military style and size. Called the Model 1920, it was offered in 7.63mm (Mauser) and 9mm Long (Bergmann-Bayard).

The M1920 represented the first attempt to this scribe’s knowledge to improve upon the Colt/Browning swinging-link, recoil-operated locking system of the M1911 U.S. 45 Automatic. From the chamber forward the design copies faithfully the Browning locking system, as can be seen in the accompanying “exploded” drawing. Rearward of that point, the slide was changed to use a simpler and cheaper spring-loaded claw-type extractor (part No. 66) mounted in an external slot. At the upper rear of the slide was installed a rotating manual safety (see fig. 9). It did not block the sear or hammer, but when engaged rotated a steel block in position to prevent the hammer from striking the firing pin. Engaging this safety also retracted the rear sight into the slide.

The biggest difference from the Browning design was in the firing mechanism. The backstrap was made integral with the frame, doing away with the grip safety and separate mainspring housing. Instead, a simple recess was bored beneath the hammer to house a coil mainspring (part No. 09). This replaced 4 parts with 2, and eliminated several costly machining operations.

The Browning sliding trigger and intricately-shaped disconnecter were replaced by a pivoted trigger, a stamped sear bar, and a simple flat

interrupter (disconnecter) riding in a slot on the right side of the receiver. These innovations reduced costly machining operations and proved to be as durable and reliable as the Browning system. A simple, sturdy pivoted sear was used.

Externally the M1920 greatly resembled the Colt 45 auto, but had a clumsier appearance because of its abrupt stock/barrel angle and straight backstrap.

In this form the Star represented a significant mechanical improvement on the Colt/Browning, not a “cheap copy” as it has frequently been described. It could be produced more quickly at less cost than the Colt, yet possessed the same inherent reliability and durability. It had only one serious shortcoming; the safety did not block the hammer.

The M1921 was essentially the same gun fitted with a long grip safety pivoted near the bottom of the frame. This feature was not considered worth the additional cost by Star customers, and the M1921 was not manufactured in large quantities.

Mechanically, the final form of the Star high-power design was achieved in the M1922. The slide-mounted safety was discarded and replaced by one pivoted on the left rear of the gun frame. Here again simplicity and low cost were achieved. This safety contains a notch on its shaft. When disengaged, the notch does not interfere with hammer movement, allowing it to fall and strike the firing pin when the trigger is pulled. When engaged, a solid portion of the shaft intercepts and bears down upon a “tail” on the hammer. The hammer cannot move, even though the trigger is pulled. This safety is quite positive and trouble-free in its action, yet is basically simple and easily produced.

The M1922, with only very minor modifications became the Star Model A and was offered in 9mm Long. By April, 1934, approximately 80,000 had been manufactured in 9mm Long, mostly for the Spanish Guardia Civil (Land Police). The Guardia Civil guns were stamped “GC,” for the benefit of collectors who like to know who used a gun.

First made in 9mm Long, the Model A was offered in 9mm Parabellum in 1932. The slightly enlarged Model M was offered first in 1924, in 45 Auto and 7.63 Mauser, both as a semi-automatic pistol and as a selective-fire machine pistol with detachable wood holster-stock. In 1925, the M became available in 38 Auto. When the more powerful 38 Super Auto cartridge was introduced, this same gun was used for it without change. By



1934 some 5,000 in 38 Auto (Colt) and 6,000 in 45 Auto had been manufactured. Production of 7.63mm Mauser pistols was apparently quite small.

By WW II the basic Star design had been somewhat restyled, but not changed mechanically. Stock angle and profile were changed, resulting in an appearance almost identical to the Colt 45. In this form the 9mm Long became the Model A; 9mm Parabellum, Model B; 38 Super Automatic, Model M, and the 45, the Model P. Identical otherwise, and with considerable parts interchangeability existing, the A and B are smaller than the P and M. Frames and slides of the latter two are wider and barrels are larger in diameter to accommodate the Colt cartridge. Weight is 1 5/8 ounces greater. Dimensional differences are contained in the accompanying tables.



**Basic Star design** was reduced in size to produce the S series in 7.65mm and 9mmK shown here; later they were further reduced to true pocket size in same calibers.

**Table 2 Llama (Gabilondo) Pistols**

Stoeger Arms Corp., importers

Model	Cal.	Mag. Cap.	Wt./ozs.	Lgth./ins.	Hgt./ins.	Bbl./ins.	Price
XV	22 LR	9	21	6 $\frac{1}{4}$		4 $\frac{1}{4}$	\$52.50
Exec.	22 Short	6	13 $\frac{1}{2}$	4 $\frac{3}{4}$		2 $\frac{3}{8}$	37.50
XVIII	25 ACP	5	13 $\frac{3}{4}$	4 $\frac{3}{4}$		2 $\frac{3}{8}$	37.50
XA	32 ACP	8	21	6 $\frac{1}{4}$	4 $\frac{3}{8}$	3 $\frac{1}{16}$	52.50
IIIA	380 ACP	7	20	6 $\frac{1}{4}$	4 $\frac{3}{8}$	3 $\frac{1}{16}$	52.50
VIII	38 Super	9	38 $\frac{1}{2}$	8 $\frac{1}{2}$	5 $\frac{3}{8}$	5	71.50
IXA	45 ACP	7	38	8 $\frac{1}{2}$	5 $\frac{3}{8}$	5	71.50
MATCH	38 ACP	9	38 $\frac{1}{2}$	8 $\frac{1}{2}$	5 $\frac{3}{8}$	5	131.50
	45 ACP	7	38	8 $\frac{1}{2}$	5 $\frac{3}{8}$	5	131.50

Engraved, plated, specially finished and special grip models available at extra cost. Cased presentation models available on special order at considerable delay. Models XV, XA, IIIA available as “Airlite” with alloy frames, weighing 4 oz. less, same prices. All models listed are in production and available.

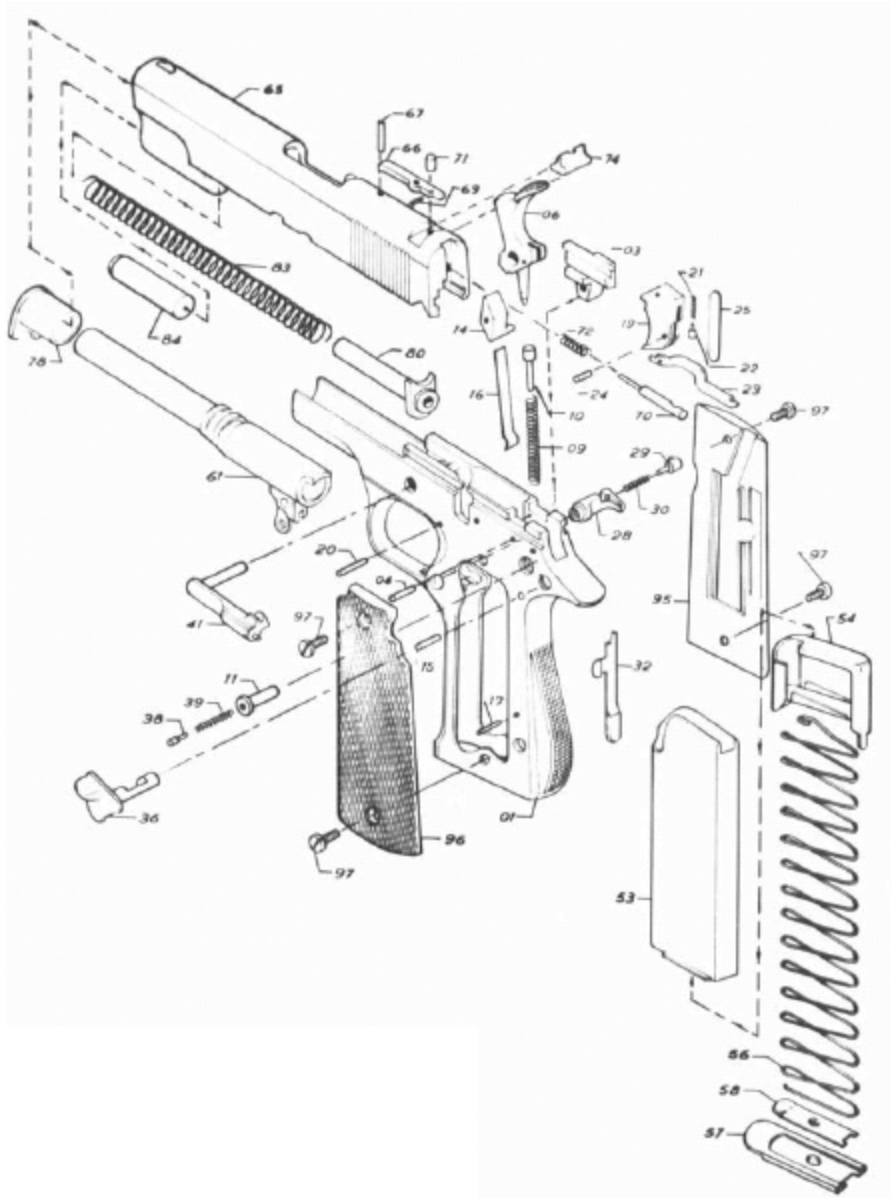
At the present time, all but the Model P are in production. A sample Model AS just received displays excellent workmanship. It functions perfectly with 9mm Long, 38 ACP and 38 Super Automatic factory loads. So long as proper bullets are used, it performs equally well with medium- and full-charge handloads in 38 Super cases. In regard to use of 38 Super Automatic ammunition in Star pistols chambered for the 9mm Long (normally marked “9mm/38”) authorities say the guns are intended for use with both cartridges, and that they are proofed with loads developing 150% of 38 Super pressures.

Accuracy with this sample gun and with two 9mm Parabellum Model Bs has been excellent — equal to that of a new Colt 38 Super Automatic pistol with comparable ammunition.

The big-bore Star pistols became quite popular in Latin American countries. As a result, the Brazilian firm Hafdasa produced a nearly identical copy of the Model P in 45 caliber. It differs only in minor dimensions and in the use of the Colt/Browning firing pin and internal extractor design. This gun is known as the Ballester-Molina and was once a standard Brazilian Army service sidearm.

Impressed with the success of the large-caliber locked-breech guns, Star adapted the design to smaller pistols chambered for the 32 and 380 ACP cartridges. Significant among these is the “Starfire” Model DK, the smallest and lightest 380 pistol available today. Only 5 $\frac{3}{4}$ ” long and 4” high, it weighs 14 ounces. More conventional in size are the SI and S in 32 and 380 respectively. They measure 6 $\frac{1}{2}$ ” long, 4 $\frac{3}{4}$ ” high, and weigh 22 ounces.

Mechanically, these smaller guns are identical to the big military and police models. Star also produces small blowback-design pocket pistols in 22 and 25 caliber. Significant is the “Lancer” Model HK in 22 Long Rifle caliber. Virtually all other pistols this small are chambered only for the 22 Short or 25 ACP — both inferior in striking power to the 22 LR in High Velocity, Hollow Point form.



**Basic Star high-power design** is quite similar to the Colt/Browning, as can be seen in this exploded view of the M-1922. Differences are only in lockwork, extractor, lack of grip safety and separate mainspring housing.



Star of 1920 was an initial effort to produce an improved version of the Colt/Browning. Manual safety on the slide retracted the rear sight and interposed a block between the hammer and firing pin, but did not block hammer or sear.



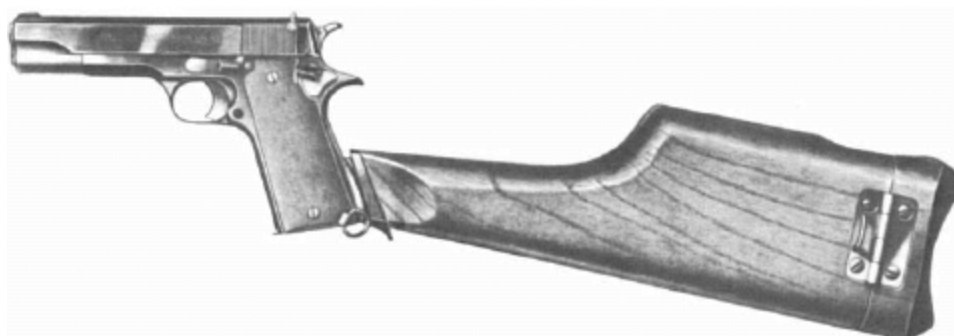
**Present Star** configuration is typified by Model M shown here. A and B models are identical but slightly smaller. Super series has an added quick takedown feature.

**Table 3 Star (Echeverria) Pistols**

F.I., importers

Model	Cal.	Mag. Cap.	Wt./ozs.	Lgth./ins.	Hgt./ins.	Bbl./ins.	Price
F	22 LR	10	27½	7¼	5	4¼	\$59.95
FI	32 ACP	9	27½	7¼	5	4¼	
F Sport	22 LR	10	29½	9	5	6	59.95
F Olympic	22 Short	6	28	9	5	6	
HK Lancer	22 LR	8	14½	5½	4	3	
CU	25 ACP	8	10½	4¾	3½	2¾	59.95
DK	380 ACP	6	14	5¾	4	3½	69.95
SI	32 ACP	9	22	6½	4¾	4	69.95
S	380 ACP	8	22	6½	4¾	4	69.95
Super S	380 ACP	8	22	6¾	5	4	
B*	9mm Para.	8	37½	8½	5⅓	5	84.50
M	38 Super	9	39⅛	8½	5⅓	5	84.50
P	45 ACP	7	39⅛	8½	5⅓	5	
Super B	9mm Para.	9	35¼	8¾	5½	5⅓	
Super M	38 Super	9	40	8¾	5½	5⅓	

**All guns listed** are in production, but only those carrying a retail price are available. \*The Model AS (called in Spain the Model A) is identical to the Model B, but is said to function reliably with 9mm Largo or 38 Super cartridges. It is usually marked “9mm/38.”



Star Model M machine pistol in 45 ACP and 7.63mm Mauser calibers was intended to compete with Mauser’s Schnellfeuer during the 1930s. Few were made.



**Star of 1922** embodied all features of later models and became the Model A.

The current Star line also contains other blowback models in 22, 25 and 32 caliber, most of which are available from F.I. The accompanying chart details the general specifications of all Star models for which we've been able to dig up the information.

The question most likely to be asked concerning any Spanish pistol (and I've received hundreds of letters on the subject) is "How good is it?" Star, Astra, and Gabilondo automatics (actually marked as such, not copies) are of good fit and finish, accurate, durable, and reliable, regardless of model or date of manufacture. Functionally, they are equal to contemporary domestic guns and the better European makes.

In quality of workmanship, the above makes produced before WW II are excellent. Generally speaking, they can be rated (1) Astra, (2) Star, (3) Gabilondo. Fit and finish of Astra M400 and M600 are very fine, only slight deterioration having taken place during WW II.

Star models of the period are virtually equal in quality, with, in my opinion, Model B pistols of the late 1940s, being perhaps slightly nicer than some Astras. These particular guns have barrel and slide fitted with less play than even contemporary domestic models. This is particularly evident in the large lot of guns recently sold by Interarmco.

Gabilondo Llamas of the period are reasonably well finished, but not quite equal to comparable Star and Astra models. This is particularly evident, internally, at points like the ejector, extractor claw, disconnecter, etc. Internal parts are rather rough compared to the other two makes.

Regarding current-production guns, I rate them (1) Star, (2) Astra. (3) Llama, with the exception of the Llama “Match” which is carefully hand fitted and priced accordingly (over \$130). It ranks at the top of the heap.

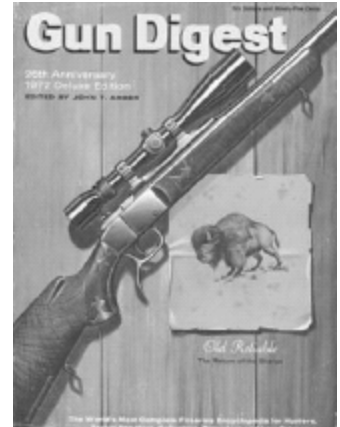
In regard to current domestic guns, say the Colt Government Model and S&W M39, Star very nearly matches them in both fit and finish, while Astra and Llama fall successively farther below.

Functionally, the several dozen specimens I’ve handled and shot are equal to comparable, current domestic models. As far as any personal preference is concerned, the Star B (9mm P) and AS (9mm/38-38 ACP) currently in use rank second only to my S&W M39. They are very closely fitted, nicely finished, and are both accurate and reliable.

After all this, I can honestly say that current Spanish pistols are good. One need not hesitate for a moment in choosing any of today’s Astra, Llama or Star pistols.

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1972



## Combat Shooting... A Logical Start

The theory and practice of two-handed combat shooting, intended for adoption by police and other law-enforcement agencies in the British Isles.

■ Colin Greenwood, *photos by Kenneth Marsden*



## Part I

**T**HE SUBJECT of combat shooting is of immediate importance to those handgun shooters whose weapons may have to be used under practical conditions. To other shooters it may be a matter of academic interest only, yet even among those the subject frequently arises. Various “experts” are likely to expound at length on the merits or demerits of different combat shooting techniques, and opinions are frequently influenced by experience (oft en secondhand and exaggerated), by the methods taught in a particular Police or Army unit, by the books and articles on the subject and, unfortunately but not infrequently, by films and TV. This being so, it might be interesting and possibly useful to examine the problems involved in taking the first steps toward combat shooting and to test some of the theories put forward against what the writer fondly thinks is a logical study of the problem.

Combat shooting is usually taken to cover the use of a handgun, offensively or defensively, in situations where the target is shooting back. Such situations arise without forewarning, in difficult locations, frequently in bad light and when the shooter is literally caught on the wrong foot. In short, conditions which are very far removed from the target range. Highly refined target arms will have little place under such circumstances, and it is an oft -repeated view that target shooting techniques with all their refinements have no place either. However, this matter should be considered with care.





**Correct grip** and a too low grip. Arrow shows direction of recoil and line shows fulcrum made by top of hand. Differences in these will cause a substantial change in point of impact.

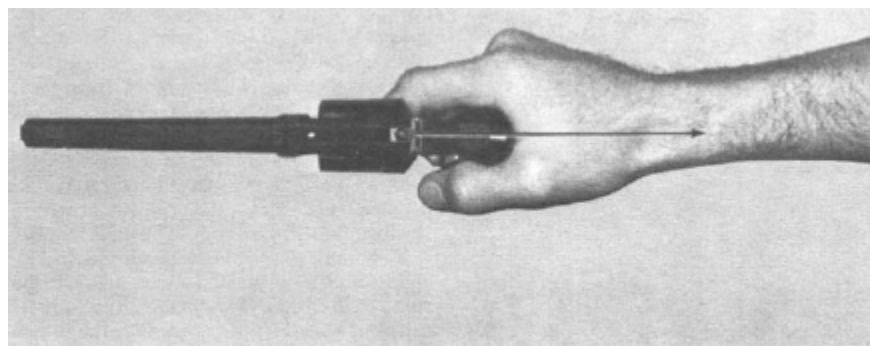
Combat shooting techniques usually regard the distance from shooter to target as the prime consideration in the choice of method employed. The shorter the range, the faster the method of delivering the shot has to be; conversely, the longer the range, the more precise the method of delivery must be. It is obvious that in some combat situations speed is essential, yet speed always tends to work against accuracy. The larger the target, the less precise the delivery need be, but speed should never be allowed to negate accuracy. There is little point in getting off a fast shot which misses your opponent while he is a fraction of a second slower, but hits. The various schools of thought in combat training almost all start with an instinctive or semi-instinctive technique at short ranges, then move through pointed shots at medium ranges to aimed shots at long ranges. Most fix the maximum range for instinctive shooting at around 20 feet, varying the other styles on a sort of sliding scale toward the longer ranges.

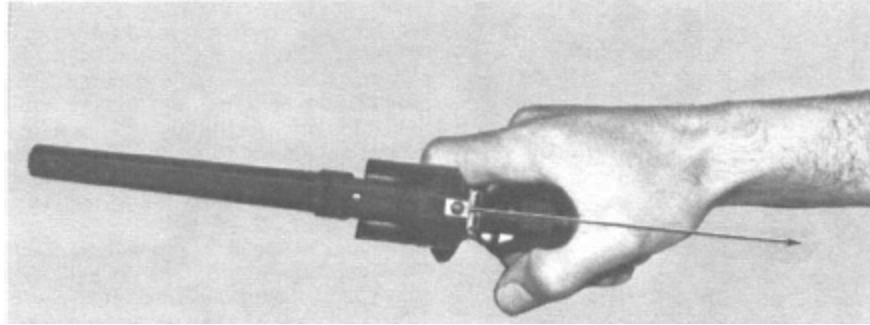
Instinctive styles at ranges of 20 feet or less presuppose a need for speed, with both parties in the open and cover not readily available to the shooter. The distance is short, the target relatively big. Assuming that hits in the torso are the objective, the target will be around 30 inches high by 18 inches wide. It goes without saying that, if a shot is to be a hit, the barrel must be aligned with the target when the bullet leaves it. Accepting that the point of aim is the center of the target, the torso allows for a vertical error of up to 15 inches or a lateral error of up to 9 inches; the latter, therefore, is more critical.

A pointing error can arise in two ways. Firstly, if the pistol is properly aligned, both vertically and horizontally, it can actually be pointing at a spot 8 inches from the center and still be a good hit. However, any misalignment of the muzzle in relation to the grip will be magnified in direct proportion to the distance from muzzle to target. If a 4-inch barrel revolver is used the distance from grip to muzzle will be around 6 inches. If there is an error of alignment of  $\frac{1}{4}$ -inch, that is, if the gun is held with the hand pointing towards the target, but the muzzle is  $\frac{1}{4}$ -inch off to one side, the error will be multiplied 40 times at a range of 20 feet and the shot will be a miss.

### **The Perfect Grip**

There is only one way to ensure correct alignment of the pistol every time, and that is for the shooter to take up a perfect grip. This has to be taken up quickly and instinctively, but nonetheless perfectly, and the only way to achieve this is first to learn the correct grip and then work at it until the hand is incapable of an incorrect hold. The correct grip for practical or combat shooting is basically the same as the correct grip for target shooting, the only variations being in the tightness of the hold, and possibly the location of the thumb. The center of the backstrap must be located in the center of the V formed by the thumb and forefinger, and the alignment of the barrel from rear sight to front sight must be a continuation of the alignment of the arm from shoulder to wrist, so that if the arm were brought up into the target shooter's stance, there would be one continuous line from shoulder to front sight. No matter how tight the grip for combat shooting, the pressure of the hand must still be predominantly fore and aft on the pistol, and the weight of pressure of the individual fingers should progressively decrease from ring finger to little finger.





**Top view** of correct grip and off center grip. Arrow shows direction of recoil. Using off center grip, recoil will cause twisting of pistol and a substantial lateral error.

The question of grip is also vital in connection with recoil which affects pistol shooting in two ways. Most of the recoil occurs after the bullet has left the barrel, but it can still affect the shooter both physically and psychologically; recoil can quickly make an inexperienced shot frightened of his gun, causing him to flinch badly in anticipation of the recoil. Flinching is a pretty certain way to ensure missing any target in either combat or target shooting.

The cause of recoil is quite simple. The burning gases under high pressures exert themselves equally in all directions, and only the bullet is free to move. The opposite and equal reaction to this is the backward movement of the gun in recoil; if it were able to recoil freely its movement would be exactly in proportion to the movement of the bullet and the products of combustion. Supposing the total weight of the bullet and the products of combustion to be 200 grains and the weight of the pistol to be 2 pounds (14,000 grains), the velocity and the energy of the recoil will be just one-seventieth of the velocity and energy of the bullet at the muzzle. However, the pistol does not recoil freely when held. If the pistol is properly gripped, the hand firmly in contact with it, part of the weight of the body can be added to the weight of the pistol to represent the mass which is opposing the bullet, thus reducing the actual recoil of the weapon. A perfect grip is therefore essential in controlling recoil and combatting any tendency to flinch.

### **Recoil Effects**

Most recoil movement occurs after the bullet has left, but it starts to operate while the bullet is still travelling along the barrel, which results in a

lifting of the muzzle before the bullet leaves. Provided this movement is consistent, it has no significance and can be compensated for by the sights. Any skeptic may test these theories by checking the difference in height above the barrel line of the front sight and the rear sight of a revolver; or he can take a break-open revolver (such as the Webley) and fix the barrel in a vise, bore sighting it at some mark. If the grip is now brought up to close the gun, checking the sights will show them pointing appreciably higher than the mark on which the barrel was bore sighted. This means that the sights are actually directing the shot low at the time of the trigger release so as to allow for the rise of the muzzle caused by recoil. A further test can be made by shooting two different bullet weights from the same pistol, for example the 145-gr. and the 200-gr. bullet in the 38 Smith and Wesson. It will be found that the heavier bullet strikes higher than the lighter — a result of the heavier recoil which the heavier bullet induces.

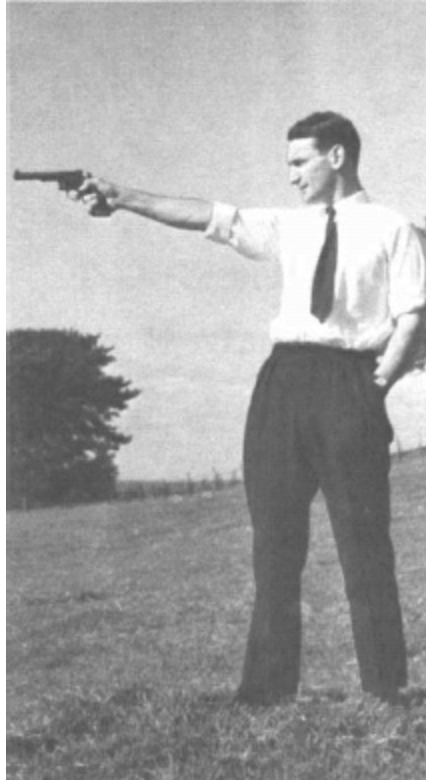


**Top view** of correct grip and off center grip. Arrow shows direction of recoil. Using off center grip, recoil will cause twisting of pistol and a substantial lateral error.

The recoil acts directly in line with the barrel and, of course, the hand is well below the line of the barrel. Thus the recoil acts as a lever, the fulcrum of which is the top of the hand. If the location of the hand on the pistol is allowed to lift or drop from shot to shot, the leverage asserted changes substantially and the point of impact will be changed in the vertical plane. For all practical purposes, the recoil acts directly to the rear. If the pistol is correctly centered in the hand with the proper alignment from front sight to shoulder, the recoil is transmitted in a straight line to the arm and the body, where much of it can be absorbed, and there will be no lateral disturbance caused by recoil. However, if the grip is not perfect and the pistol is off center in the hand, the recoil will cause the hand to twist before the bullet leaves the barrel. This force can produce a substantial lateral error of alignment.

The force of recoil cannot be overcome by the shooter, but it can be controlled so that it does not adversely affect the shot. This can only be done with a perfect grip.

Another factor likely to cause the fatal ¼-inch of misalignment in instinctive shooting is trigger control. To see just how far bad trigger control can deflect the muzzle of a pistol, get someone inexperienced to try a fast double action shot with an empty revolver, and watch the muzzle swing out much more than ¼-inch, usually high and right. An educated trigger finger is needed to get a shot off quickly from an instinctive position, particularly with a double action revolver. Only excellent trigger control will allow the trigger to be drawn back until the shot breaks without any disturbance of alignment. The term “squeeze,” too-frequently used in describing the method of releasing the trigger, is very misleading. The correct method involves pressing the trigger directly backwards without any pressure or deflection sideways and using only the trigger finger without any change of pressure from the other fingers on the grip. This is the type of trigger control required in good target shooting as well as in combat shooting. The problem of trigger control is also closely connected with the problem of grip. If an off-center grip is taken, it will be extremely difficult, if not impossible, to press the trigger straight back, and this will cause a serious lateral error of alignment. Short range, instinctive combat shooting is the form of pistol shooting furthest removed from the target shooter’s art, and yet it will be seen that two of the most important factors are common to both.



**Typical target stance.** To experienced shots, this is more accurate than any combat stance. Its value to combat shooters lies only in the ease with which errors can be diagnosed.

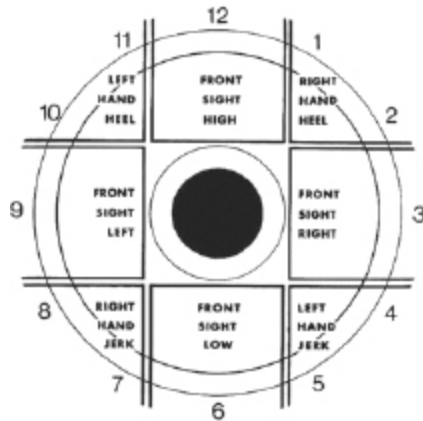
### **Instinctive Shooting**

Instinctive shooting is limited to the shortest ranges, and most accepted styles indicate that the pistol is held either just outside or just within the fringe of vision. No attempt is made to align the pistol visually. At ranges beyond 20 feet, most systems use a pointing method of alignment, where the pistol is brought well into the field of vision, but both eyes are kept open and focused on the target. No attempt is made to use the sights, but alignment is visually aided by looking along the barrel. As the range increases, the amount of error which can be tolerated decreases in direct proportion, so that at 40 feet a lateral error of 1/8-inch will cause a miss. Thus the point-shooting method is strictly limited in its effective range, and beyond 40 or 50 feet the sights must be brought into use if accurate shots are to be made. The reduction of permissible error in medium-range point shooting increases the importance of perfect grip and trigger control, and any shooter who is to perform well must first master these elements.

At longer ranges, any combat technique must involve the use of the sights if it is to be effective, and any use of handgun sights immediately raises the problem of where the focus of the eyes should be fixed. No eye is sufficiently flexible to permit both the sights and a target 25 yards away to be clearly in focus. The over-riding importance of correct gun-hand alignment has been explained, and if the terms previously used in connection with alignment are applied to the use of sights at longer ranges, the relationship between a sighting error and the resultant error on the target can be established. Using the same 4-inch barrel revolver the sight base will be about 5 inches, and a range of 25 yards represents 180 sight radii; therefore any error of sighting in these conditions is multiplied 180 times on the target, and a sighting error of a mere .010-inch will cause an error of 1.8 inches on the target, while a lateral error of .050-inch or 1/20-inch will cause a miss at 25 yards.

The combat shooter faced with a target at longer ranges will frequently be required to choose between focusing on the target and accepting the inevitable loss in accuracy which must result, or obtaining fine accuracy by focusing on the sights and having a less clear picture of his opponent. In practice, this decision rests on the range involved and the amount of target exposed. At ranges just beyond the maximum for point shooting, the focus remains on the target and the sights are permitted to be somewhat out of focus. This gives a better alignment than the pointing technique. At long range, or where the target is only partially exposed, it will be necessary to fall back on the target shooting technique of focusing on the sights and allowing the target to be blurred. This technique is by no means easy to master and many experienced shots find difficulty in maintaining a concentrated focus on the front sight. Yet this is essential in target shooting and in those combat situations where fine accuracy is needed.





## Target Shooting

The essentials of target shooting can be listed as:

- 1, Correct stance.
2. Perfect grip.
3. Correct sighting techniques.
4. Perfect trigger control.

It will be seen that grip and trigger control figure in all combat shooting, while sighting techniques are vital at all but the shortest ranges. At first glance, it may seem that the target shooter's stance, which has to be so carefully and precisely adopted, has absolutely no relevance to combat shooting and, indeed, it must be conceded that this stance would be quite ludicrous in most combat situations. The stances and positions adopted in various forms of combat shooting vary considerably, but all are quite different from the target shooter's stance. To be of value, a combat position should offer:

1. Speed of movement in bringing the gun into action and in changing targets.
2. Control to maintain the gun within the limits of the target, and prevent overswing on any change of target.
3. Adaptability to any conditions of terrain and circumstance.
4. Holds which minimize any errors of technique which may arise in the heat of the situation.

This last point provides one of the stumbling blocks in teaching combat shooting. Although a good combat position will reduce any errors of technique, it will not eliminate them and it may well leave them to develop to the point where they are almost impossible to correct. Although errors may be minimized, they will still produce less reliable shots, and will

inhibit progress toward proficiency in any type of shooting. No error can be corrected until it has been properly diagnosed, and the use of combat techniques in the first stages of training makes diagnosis virtually impossible.

It is often suggested that errors in technique can be diagnosed by “reading the target,” and many shooters will be familiar with a segmented target, with a particular error shown in each segment. Firstly, they cannot explain what error might be present if there are shots scattered all over the target, as is frequently the case with a novice. Secondly, their very simplicity is dangerous and misleading in the extreme. Most of these targets show that shots falling in the 6 o’clock segment are the result of allowing the front sight to fall below alignment with the rear sight. This may be so, but the cause might equally be in a changed height of grip, excess pressure with the little finger, pushing forward the whole hand at the time of releasing the trigger, or indeed, by a combination of various faults. To suggest that the problem is as simple as these charts indicate is nonsense.

The combat shooter must, however, ensure that he has mastered grip, trigger control and sighting techniques, and eliminated any errors which may have arisen, before he can make any real progress in combat techniques. If the combat positions make these first steps difficult to check, and the target does not offer a sufficiently accurate guide to any faults which may develop, the shooter will have to look elsewhere for the most suitable way of learning and checking these basic essentials. The off hand stance adopted by target shooters offers a method in which grip, trigger control and sighting can be taught clearly and in which any errors can be detected and corrected before moving on to combat techniques. An experienced coach, watching the movements of the shooter firing off hand, will be able to spot most errors, and “dry firing” (without ammunition) is frequently useful in tracing faults. However, the inexperienced shooter will be affected by knowing that his pistol is not loaded and, if flinching or trigger snatch were serious problems, he may not show these in dry firing. Possibly the best method of detecting faults in technique is “skip shooting,” in which the coach loads a revolver (preferably in 22 caliber) with three live and three fired rounds in an irregular sequence. The shooter does not then know whether a live round or a spent case will be presented and any reaction to recoil or any faults which can be disguised by the effects of recoil can easily be spotted when the spent round is presented. The shooter

as well as the coach will then see, not only the error, but the effect which the error has on alignment. If a shooter can see for himself what is going wrong, he is well on the way to correcting it.

A logical study of the problem, therefore, indicates that the first step in learning combat shooting is best taken by following target shooting techniques to the point where the basic elements have been well learned. It is not necessary to go beyond this point in the strict context of basic combat training. However, any organization responsible for training men in combat shooting might well believe that practical measures taken to encourage target shooting as a sport represent an investment which will be repaid a thousand fold. If a real effort is made to encourage trainees to take up target shooting, even if only a small proportion do so, the organization will benefit from the fact that these men will maintain their mastery of the basic elements of shooting in their own time, probably at their own expense. Further, such interest in handgun shooting generally is likely to increase the amount of interest taken in combat shooting, and lead many of them to devote their time and efforts to improving their efficiency in this field also. In purely economic terms, therefore, such an investment must pay off.

The basic elements of combat shooting are the same as those of target shooting, and the art of pistol shooting can, perhaps, best be thought of as a tree. The trunk consists of the basic elements of grip, trigger control and sighting and, once these have been mastered, the tree forks into the two main branches of combat shooting and target shooting. Each of the main branches has smaller branches which represent the different forms of shooting within each branch. No matter how far he has progressed along the target shooting branch, an experienced target shooter has only reached the fork of the tree when he comes to apply himself to combat shooting. The novice, starting at the foot of the tree, can not reach either branch until he has mastered the main trunk problems. •

## Part II

**P**ART ONE of this article demonstrated that skill in any aspect of handgun shooting can only be based on mastery of grip, trigger control and sighting. The second part proposes to take the arguments a stage further; converting the theory into practice, looking at the problems of the individual who wishes to learn combat shooting, and at the organizations which have to teach it.

The teaching of combat shooting should progress through four distinct stages, each of which provides a logical step forward and each of which is a full, sound base for the next step. The four stages are:

**Introductory** Dealing with safety; functioning, care and maintenance of arms and ammunition; potential dangers from extreme range, penetration, ricochets, etc.; laws covering carrying and the use of handguns.

**Elementary** The theory of pistol shooting; grip, trigger control, sighting, position and breath control.

**Practical** Adapting the basic elements of pistol shooting to positions likely to be of value; different positions from prone to standing; use of rests and support; making rapid changes of target; dealing with moving targets.

**Tactical** Fitting the practical methods into the tactics likely to be involved; taking cover and making the best use of it; shooting from behind cover; shooting in the dark; fast draw; methods of approaching opponents in widely differing situations.

The introductory stage is not fully covered here, but clearly safe gun usage and a full understanding of the guns and their potential are essential. The standards of safety cannot be anything but the highest, and the handling of a firearm must not cause the slightest danger, nor even the slightest feeling of uneasiness, to anyone whom it is not intended to endanger. A proper understanding of the handgun, how it works and how to care for it, is necessary for safety and for the efficient use of the gun. This must be taught to the stage where everything that happens between picking up the gun and firing the shot is fully understood. The potential of the ammunition in terms of maximum effective range, extreme maximum range, penetrating powers and ricochet dangers affect the safety problem, but they also have a direct bearing on the use of the gun and the later stages of training. The man who knows the penetrating power of a large caliber revolver is not going to take cover behind a thin wooden screen. Similarly, such a man faced with an

opponent partly hidden by a thin timber screen will know that he can take his opponent out by shooting through the wood instead of trying to hit a small exposed part.



**Two handed grip** on revolver when firing single action. The thumb of the left hand is used for cocking and allowed to rest on top of right hand. If revolver is to be used double action, the thumb can rest along the top of the right thumb.



**Two handed grip** for autos. This grip can also be used with revolvers when firing double action.

Any agency required to provide men with arms and train them, and any individual who takes it upon himself to use a firearm, must know more than just how to fire it. He must know when to fire it or, more to the point, when not to fire. Time spent covering the law on this subject could save a great deal of trouble later.

Classroom stuff, all this stage one, but it must never be boring lecture material. The rules of safety have to be taught until they are second nature; range, penetration and ricochet problems require talk in terms of yards and miles, of feet per second, and of feet or inches of penetration in a particular material. All this will make more sense and be better retained if the talks and lectures are backed up with visual aids — visual aids which will register. Instead of simply saying that a 38 Special bullet will penetrate “X” inches of timber at “Y” yards, produce the timber with the bullet still bedded in it or, better still, shoot through the piece of timber and let everyone watch. Shooting at sealed cans of water or at an orange may be pretty old hat, but it does impress. When it comes to impressing people that bullets actually kill and that safety is important, try a color slide of a particularly messy bullet wound — strong stuff, but it impresses.

### **Theory and Practice**

The theory of the elementary stage was the subject of Part I. Now we should see how this theory can best be put into practice. A good coach for each shooter will greatly ease many of the problems, but few shooters will be able to monopolize a good coach, even if they can find one, and no police agency can afford so many instructors. The problem can be eased a little by pairing off the students so that one can carefully watch the other while all are under the eye of an instructor. This helps in three ways. Firstly, the amount of dead time, when members of a class are simply waiting their turn to shoot, is reduced; secondly, the “coach” can learn a lot from his partner’s mistakes; thirdly, the shooter is helped by someone who can watch all his moves at a time when he can only see his handgun.

The pairs of students take their first steps, still in the classroom, by developing grip, sighting and trigger control techniques. Revolvers loaded with empty cases, or preferably with snap caps are used and, of course, both guns and cartridge cases must be checked by each class before starting. The “target” for this stage is a blank, light colored wall — any wall with nothing on or near it to distract the shooter’s attention from his sights. When he fully understands the proper sight picture and has, with a little coaching and correcting, got a good grip on the pistol, the shooter takes up the correct off hand stance used by target shooters. Then he concentrates on his sights and keeps concentrating on them while he tries his as-yet-uneducated trigger finger in breaking a single action shot. He must hold his aim, keep looking

at the front sight while the shot breaks, then he will see the blade dancing all over the place as all the different pressures tend to wrench it out of alignment. Now he sees the problem; he should stay facing his blank wall until he can take his aim, break a single action shot and still have a near-perfect sight picture a full second afterward. When he can do that he is fit to show his face on a range, but not before.

The first gun to be fired on the range should be a 22 revolver — for a number of reasons. The revolver is the only handgun which can easily be used for skip shooting with alternate live and dummy rounds — there is no better aid to learning the basic principles than this. The revolver is a little simpler than the auto, is less likely to distract the novice at this stage. A novice is always apprehensive about the first few shots and the use of a heavy caliber revolver could make him gun shy, a problem difficult to overcome. There is no real difference between shooting a 22 and shooting a 357 Magnum until the recoil comes, and mastery of recoil follows mastery of the correct grip. Finally, 22 ammunition is cheap and a substantial amount can be allocated to this stage of training without unduly straining the budget. No matter what gun the shooter will eventually use — revolver or auto — and no matter how much centerfire ammunition is available for training, start him off with a 22 revolver.

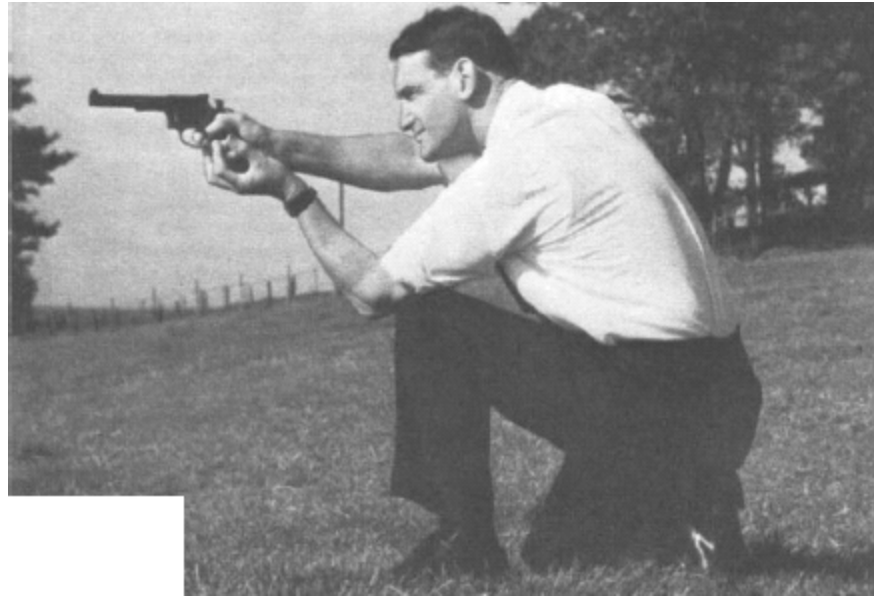
### **First Range Shots**

The object of the first series of shots is merely to demonstrate to both student and instructor that the lessons against that blank wall have been properly learned, and that grip, sighting and trigger control problems are being overcome. The first few shots will undoubtedly be affected by nervousness, so there should be nothing about the practice which will add new problems or distractions; they should be fired in exactly the same way as the snapping at the blank wall was done. No targets, just a large backstop, but this is not just blasting off half a dozen shots to get the feel of the thing. Each shot must be carefully delivered and then followed through by allowing the pistol to come to rest after recoil and checking the sight picture again. This follow-through sight picture should look pretty much like the sight picture did before the shot was fired.

Prone position. Full two handed grip is used. Gun and body position are kept as low as the terrain will allow.

The next step is to introduce a target, to see whether the early lessons are paying dividends. Arguments about the type of target which should be used for combat training have ranged far and wide; targets currently used vary from the standard round bull competition target to complicated figure targets with odd-shaped scoring zones. These targets all hinder the shooter in attaining his current object, no matter what value they might have in later stages of training. That round black aiming mark on the competition target draws the shooter's eye like a magnet away from his sights and the scoring rings tend to be very discouraging in the early stages. The same can be said of the silhouette targets in common use. What is needed at this stage is simply a plain rectangle of paper, preferably a matte, off-white color, with no aiming mark to distract the shooter's eye from his sights. Progress at this stage is measured simply by group size; as the shooter's grasp of the basic skills increases, the group size will decrease. A positive method of measuring this progress is needed, so the plain white target should have grouping circles drawn on the back where they will not distract, but will clearly indicate group sizes. Standard competition targets could be used for this provided they are put up with their reverse side toward the shooter, and provided that no account is taken of the score indicated on the back; the scoring rings used only to check the group size. The shooters should start at a range of 30 feet, with a target about 15 inches square. They should be told to shoot for the approximate center of the square, concentrating all their efforts on a good sight picture, a good trigger release, and following the shot through to check the sight picture.





**Kneeling position.** By using the type of two handed grip recommended for autos, the pistol shooter is able to fake up the same kneeling position as a rifleman would use. The supporting elbow is positioned just off the knee.

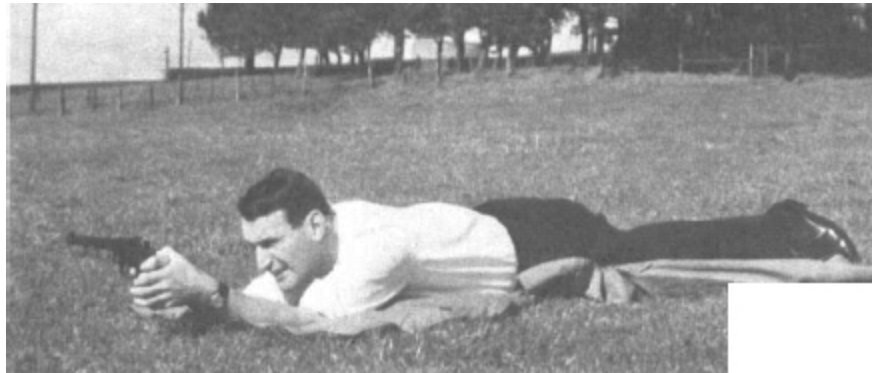
At regular intervals skip shooting should be introduced into the program, with the “coach” loading the revolver for his partner and checking the follow-through position particularly carefully at each blank round. Until a shooter can regularly group with in a 6-inch circle or less at 30 feet, he should stick to this stage of the game. Once this standard has been reached, the shooter should be faced with a round bull target for a few shots to check that an aiming mark will not distract his attention from the sights. Throughout the course the shooter should be returned to the blank wall and target shooting practices at regular intervals to make sure that no errors have arisen. Then, when he has reached the stage of finding man-sized targets pretty easy to hit, to cut him down to size a little.

### **Combat Stances**

The move to the practical stage must start with the adoption of a combat shooting position upon which the variations necessary to meet differing circumstances can be based. The necessary ingredients of a good combat position were stated in Part I to be:

1. Speed of movement in bringing the gun into action and in changing targets.

2. Control to maintain the gun with -in the limits of the target and prevent overswing on any change of targets.
3. Adaptability to any conditions of terrain and circumstance.
4. Holds which minimize any errors of technique which may arise in the heat of the moment.



**Prone position.** Full two handed grip is used. Gun and body position are kept as low as the terrain will allow.

No one position will fill all combat needs — these could vary from an ultra-short range shot delivered at lightning speed to a very precise shot at long range, with ample time. However, combat shooters the world over are now turning to the free standing two-handed position as the most useful basic combat method. It fulfills all the requirements listed above and is relatively easy for the novice to master. There are many variations of the two-handed grip, but two are put forward here as being more useful than any others. In both cases the pistol is gripped correctly by the shooting hand, a grip that does not vary in any way from that taught in the elementary stage. If the gun is a revolver, the shooting hand is then gripped by the free hand, with the little finger beneath the grip, the other fingers curled around the shooting hand. If the revolver is to be fired single action, cocking can be done with the thumb of the weak hand; for double action shooting the thumb can lie loosely on top of the thumb of the shooting hand. If the weapon is an auto, this style of grip can result in the loss of a little flesh from the top of the thumb as the slide slams backwards, and it will be far better to cup the weak hand beneath the shooting hand with the fingers around the front of the grip.

In both variations, the shooter faces square to the target. The arms are kept straight, the shooting arm pushing outwards, and the weak hand

pulling inward to form a rigid triangle with the gun at its apex. The pull of the weak hand must be to the rear only, with no sideways pressure. From this position moving targets or changes of target are dealt with by swinging from the hips, keeping the triangular support for the pistol firm and controlled.

Targets well to the side are engaged by moving the feet round to face the target, not by swinging too far out of square. This free standing position should be taught and practiced at a range of about 20 yards, using plain silhouette targets and allowing deliberate fire until the position is mastered. The whole process should then be speeded up until the student can raise his pistol from an angle of about 45 degrees to the ground and fire an accurate shot in less than two seconds. From this point onward the moves through the various positions become much easier. The prone position uses the two-handed grip in exactly the same way as the standing position, the elbows being rested on the ground to give the minimum lift for a clear shot. In the kneeling position, the type of grip recommended for autos can be used in a position similar to that for rifle shooting. When the use of rests and support is taught, the basic two-handed grip will have to be varied except when shooting over the top of cover — a situation to be avoided whenever possible. In all cases, the gun should be kept clear of the cover and support should be obtained by resting the hands or arms against the cover.

### **Short Range Shooting**

Dealing with fast, short-range targets should be left to the end of the practical stage to give the shooter as much training and experience as possible. The range at which the requirement for speed begins to take precedence over fine accuracy cannot arbitrarily be fixed. It must vary according to the skill of the shooter, the size of the target exposed and the time the opponent will take to get off his shot. At ranges of around 20 feet, when a rapid shot on a fully exposed target is called for, the two-handed grip should be used and both eyes should be kept open, with the focus on the target. If the initial stages of training have been properly carried out, the shooter will still see the sights and produce good alignment without wasting time on the process. Pure instinctive shooting, with the pistol only just within the fringe of vision, must be restricted to the shortest ranges — 10 feet or less, and to fairly large targets. The most experienced pistol shots have to work hard to master this technique, which is only used in those real

emergencies when there is nothing else for it. The most common mistake made in combat shooting is in trying to use instinctive shooting at hopelessly long ranges. If the very slight amount of error of alignment needed to produce a miss is recalled, the limits of instinctive shooting are better appreciated. If your man is almost leaning on your gun, instinctive shooting works; beyond that you want to see what your gun is doing before you let off a shot.

Colin Greenwood, 38 years old when this article was written, has been an English police officer since 1954, rising in the years since to sergeant, inspector and, his rank today, Chief Inspector. He has participated in the shooting sports generally, including shotgunning and rifle shooting, but his main interest was, and is, in handgun shooting. He won the British Police Championship twice in ISU centerfire matches, placed several times in those and other handgun events, and was twice a member of the British Team competing for the European Police Shooting Championships. Mr. Greenwood's articles have been published in the (English) Forensic Science Journal, in several British police journals, in Guns Review, et al. His latest book, Tactics in the Police Use of Firearms, is an excellent work that deals with all phases of the police use of guns and related equipment.

Mr. Greenwood is (if he doesn't mind the term) an enlightened policeman, one who does not believe, ipso facto, that stringent gun controls mean an automatic reduction in firearms crimes. Last year Mr. Greenwood was granted a Fellowship at Cambridge University to reaseach and report on the effectiveness of firearms controls in England. That study has now been completed, and here is what Mr. Greenwood had to say, in part, about his findings: "...firearms controls have done little or nothing to combat armed crime. It can be shown that, when firearms were completely free from control (prior to 1920), there was less criminal use of firearms than there is now!"

Once the first step in the practical stage has been completed, shooting should always be against a time limit except for the periodic return to the blank wall and grouping stages. The difficulty in providing turning or pop-up targets to work to short time limits has led some mathematician of long ago to work out that firing two shots in two seconds is the same as firing 6 shots in 6 seconds. Six seconds is easier to time than two, so pistol training in many parts of the world, not only in America, has been blighted by the "6 shots in 'X' seconds" bugaboo. Six shots in 6 seconds is certainly not the

same as two shots in two seconds. Apart from the failure to allow for time to come on target, those responsible for this suggestion seem to have forgotten that no one is going to stand still while 6 shots are fired at him. Combat shooting in this way makes the shooter fire 6 shots each time he draws his gun, and there is every chance that such training will take hold when he finds himself in a real live combat situation — he will promptly empty his revolver at the first target to appear, a very dangerous habit. An empty revolver is of little use when the opponent can fire one aimed shot and end the matter. If, under combat conditions, a shooter has not hit his opponent with his first shot, or at worst with his second shot, he might find it more profitable to start on his prayers rather than trouble with the third shot. In training, the maximum number of shots to be fired at each exposure of a single target should be two, and the absolute maximum time allowance should be three seconds.



**Any position** will need to be modified to suit the cover or the terrain. The kneeling position is easily modified to take best advantage of the cover afforded by an automobile.

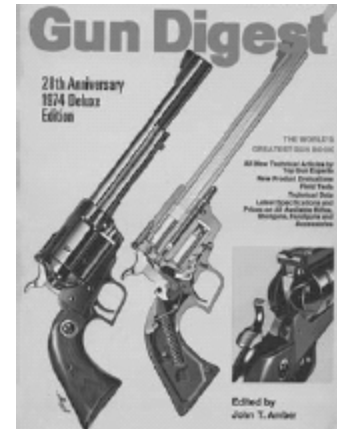
### **Final Stages**

The final stage of training is beyond the scope of this article, which deals with making a start on combat shooting. In the tactical stage the techniques which have been learned have to be fitted into the conditions likely to be found in combat. This requires a lot of thought and research into the best

methods of approaching a particular situation, whether it be taking out a criminal barricaded in a building or defending oneself against a sudden surprise attack. Fast draw falls into this stage of training — almost post-graduate stuff. All too often half-trained police recruits are asked to master the fine art of delivering an accurate, fast shot from the leather without having had the essential grounding in accurate shooting. The results are frequently tragic. No training system is complete unless it includes some tactical training in its finer forms, such as moving-film targets or a “Hogan’s Alley” type of thing, where the shooter is faced with problems requiring quick and correct reaction as well as good shooting.

Combat shooting is not something which can be learned casually by reading a couple of books and watching western or detective movies. It is a science in which the basic lessons have to be well learned before proficiency can be attained. It may well look pretty easy when a practiced combat shot demonstrates his skill, but this is carefully studied ease, the result of training and practice. The novice will need to work hard at this, but if his training follows a logical sequence his progress will be more rapid and certain.

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## Customizing Contrary Snubs

In spite of its numerous disadvantages and deficiencies, the smaller combat revolver has a place in the current scheme of things. Here are detailed data on how to have a smoother and better snub-nose. ■ Jan A. Stevenson

THE SNUBNOSED revolver is a slender reed on which to prop one's hopes of longevity. Every design aspect of it contributes to ineffective ballistics, hopeless inaccuracy, and a piddling low volume of fire. The pipsqueaks are too light by far to hold steadily on target. The sight radius is so meager that gross errors in sight alignment go all but unnoticed by the shooter. The sights themselves, with rare exceptions, are far too tight and narrow. The snubs have little point or feel for instinctive shooting, and errors in trigger control are magnified manyfold over what they would be with a more substantial sidearm. Trigger reach is too short for all but debutantes, and the grips the factory fits are usually worthless. On discharge the shooter feels an uproar like King Kong unleashed, but the bullet leaves the sawed-off snout at a pace far short of the published ballistics figures, which are based on a 6" barrel. The short barrel means a short ejector rod, which means the empties have to be

plucked out by hand, save for a couple of new designs. Whether fired deliberately or instinctively, it's one of the most inconsequential handguns in the book.

But despite its multitudinous disadvantages the much over-rated 38 snub does have its place. It fills a definite need, and in certain circumstances it is the only arm to choose.



For instance, the off-duty cop who must lug his equalizer to the movies, supermarket, beach and church, summer and winter, often finds anything larger than a snub a nuisance to hide. Likewise the undercover operative, the narcotics agent, or the vice squad officer can sometimes get away with a small 38 and have a far more effective firearm than any derringer or watch-fob automatic. The doctor, pharmacist, banker, jeweler, or shopkeeper who works in shirt sleeves, needs a gun that's concealable in a pants pocket holster — so the answer is obvious. Finally, he who insists on concealing his sidearm in a shoulder rig is restricted to the snub because the best of the half-breed harnesses will take nothing else.

### **Choice of Snubs**

So if you really need a little short-nose hideout gun, what's there to choose from? Smith & Wesson has the largest offering: three models in steel frame at about 19 oz. and in airweight at about 14 oz. Their basic



model is the Chiefs Special. The Bodyguard is a Chiefs with built up sidewalls shrouding the snag-prone hammer spur. The Centennial model is slicker still, with the hammer completely concealed in the frame; it can be fired double action only and was designed for pocket use. Each of this trio is built on Smith's small "J" frame, is of the same size and heft, and takes 5 rounds. The Chiefs is also available in all stainless steel at 19 oz., if you can find one!



Colt's 1972 Detective Special is a sturdy but small handful, weight just right at 23 ounces. Its improved grips are pretty good combat handles as found.

Colt's snubs hold 6 rounds, and are consequently somewhat bulkier than the competition. The steel-framed Detective Special hefts 21 oz., and its aluminum alloy look-alike, the Cobra, goes 15 oz. Colt's Agent is simply a Cobra with shorter grip straps.



**Snubs, by nature**, are the hardest handguns to shoot. The way the factories leave them, though, makes things harder than necessary. Author's battery includes (from left) Colt Agent, S&W Chief's Special (note chopped spur), and Charter Undercover. All have been customized to some extent. Charter wears factory optional Bulldog grips while other two get by with ace shoes and Tyler adaptors.

Colt's 1972 Detective Special, built on the Mark III system, is a big improvement over the older version of the DS. The new ejector rod, now .875-inch long, almost punches the empties out into the clear, but not quite. The ejector is now encased in a housing under the barrel, this adding a couple of ounces to total weight (now 23 oz.), shifting the balance forward, with improved handling and recovery from recoil.

The new grips are a major improvement, too. They're beefier, making for better control, with a second-finger filler built-in. They drop below the straps over a half-inch, another plus.

The Baughman-style ramp front sight, nicely cross-grooved for glare reduction, is 1/8-inch wide.

Otherwise the new Colt DS is much like its predecessor, and the latest model appears well put together — good finish, good quality control.

The knowledgeable customer usually selects a steel frame, and puts up with the extra weight involved. These guns are small enough to start with,

and a few extra ounces are a big help in dampening their vicious recoil. Moreover, besides the extra strength of a steel frame, steel contact surfaces tend to work harden, and the more you fire the gun, the smoother it operates. Aluminum alloys have no such virtues, sometimes deteriorate after long usage.

In addition to such hoary names as Colt and Smith & Wesson, a relative newcomer to the field, the Charter Arms Corp. of Bridgeport, Connecticut, also offers an excellent 38 Special snub, their Undercover model. Externally resembling the Chiefs Special, the Undercover weighs 16 oz., has a chrome-moly steel frame, high carbon or chrome-moly critical parts, and an aluminum alloy grip strap/trigger guard unit — clearly a non-stress part. I favor the Charter as perhaps the best compromise since it's the lightest steel-frame 38 made, has the widest sights of the lot, and is offered with a fine pair of combat grips direct from the factory. But take a good look at the 1972 Colt DS as well.

Having now chosen one or the other, how do we go about wrenching the maximum potential accuracy and controllability from the perverse little gun?

This problem wants considerable thought, and then a good bit of work since, as they come from the factory, the little guns are rather barren of virtue and each of the limitations enumerated in the opening paragraphs must be overcome as far as possible.

### **Sights**

Snubs come with non-adjustable milled sights, and in any altercation beyond off-the-muzzle range, your health and welfare are likely to depend on their quality. Ideally they're big, eye catching, and open enough to allow quick alignment even in dim light.

Smith & Wesson is the worst offender. Their front blade, nominally a slender 1/10", oftentimes mikes to a mere .073"–.075", and it's combined with a too-narrow rear notch. I've seriously considered having a competent pistol-smith knock the things off entirely and replace them with something usable. If going to this extreme, a 1/10"–1/8" gold or ivory bead in a wide "V" British Express-style rear leaf might prove an interesting combination.

The old Colt, with an .011" wide front post, has considerably more going for it. The rear notch is narrow-ish but can be opened by careful filing.

You'll probably have to do this to sight the gun in anyway. The new Colt DS front sight mikes about the same, but the rear notch is a bit wider.

Charter's Undercover is by far the best of the three. Their front blade, nominally 1/8 (.125") actually measures a generous .139" and .141" on my guns. The rear notch is beautifully shadow-boxed into the frame and gives a dead-black picture. It too is a bit on the tight side, and stock removal is best done on the providentially fat front post.

Snubs are usually regulated at the plant to throw 158-gr. factory loads 2"—2½" high at about 15 yards, 6 o'clock hold. It's unlikely that your gun, from your hand, will put the load you want to use to the point of aim. If she shoots low, just file down the front sight a bit at a time till you're on target. If she shoots high, well, that's bad. You have to have a higher front sight. A good gunsmith may be able to lay a welding bead up there, or he may have to braze or dovetail on a complete new ramp and blade. If windage is adrift, the group can be brought to taw by carefully filing a bit of stock from the rear sight notch or from the front sight blade, on the side toward which you want the group to move. As we've noted, this operation has the additional advantage of opening the rear sight, giving more light on each side of the front sight blade — a distinct advantage for defense shooting.

### **Actions**

A small revolver, if it is to deliver any sort of double action accuracy, needs a butter-smooth action. Many hours of careful handwork, which the factories simply can't afford to do, will be required. A few aristocratic gunners obviate this laborious action smoothing by having each moving part gold plated. This slicks the action right up, but us pore boys better do it the hard way.

Besides disassembly tools — screwdrivers, pin drift s, a brass headed hammer, etc., you'll need an India stone, a hard Arkansas stone, and several sheets of crocus cloth. Medium grade emery cloth may be substituted or the stones. A 1/8" power tool with an assortment of rubber abrasive heads is handy but not essential. Felt buffing wheels and Tripoli compound on the same tool will bring things to a mirror finish, but so will worn crocus cloth. A hand-held small parts vice is invaluable, and a pair of spring snips sees good use on a Smith & Wesson. All these items and a wealth of others are available from such good gunsmith's supply house as Brownell's (Main and

3rd, Montezuma, Iowa 50171) or Mittermeier's (3577 E. Tremont Ave., New York, New York 10465).

### Colt

Colt actions are the easiest to work with, and usually show the most marked improvement for your efforts. Tool marks are rampant (no pun intended), and the object is to make every contact surface absolutely smooth — to take off all the burrs and bumps and scratches and rough areas the factory left in. Go over everything lightly with the stones (India first, then Arkansas) or emery cloth, then finish up by polishing with the crocus cloth. Be careful to keep the stone and the clothback-up (a file or a wooden block) absolutely flat on the work; don't change any angles or bevels. Keep corners square but not sharp. Bear in mind that you're removing burrs, not stock.

The rebound lever, which has the lower leg of the V-mainspring bearing on its back, is the heart of the regular Colt mechanism. On the right side of it (inside), about 3/5 of the way up at its widest point, is a triangular shelf (called the "cam" at the factory) which engages the cylinder stop or bolt. Stay clear of this cam like the plague. The cylinder stop itself is another verboten zone — don't touch it under any circumstances; likewise the two teeth on the top of the hand which engage the ratchet.

There's no point wasting labor on areas which aren't abrading. As for which parts do need work, the best approach is to dry snap the gun several dozen times, then take it apart and look for scrape marks. Probably that portion of the trigger adjacent to its axis pin will be grinding against the frame on one side and against the sideplate on the other. Forget the frame since you can't get at it, and polish instead both sides of the trigger and the inside of the sideplate.

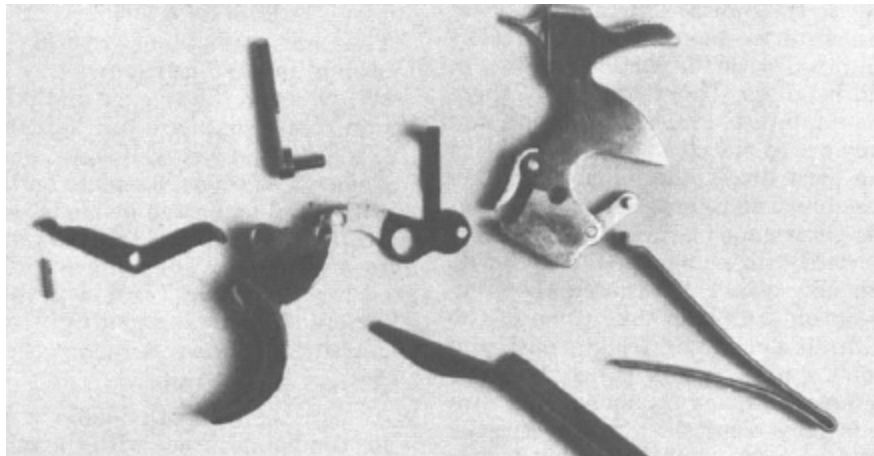
The nose of the rebound lever has a long sliding contact with a shelf on the hand. Polish both of these surfaces, but take pains to keep them flat. The outside of the hand tends to grate against its recess in the sideplate, so here's another good place to work; the sideplate recess poses accessibility problems, though. For that matter, polish the entire hand — except for the ratchet engagement teeth — but be careful not to thin it appreciably lest it tip away from the ratchet during cylinder rotation.

The front face of the rebound lever, just ahead of the cam, engages the back of the hammer to rebound it to safety position. Polish both parts (the

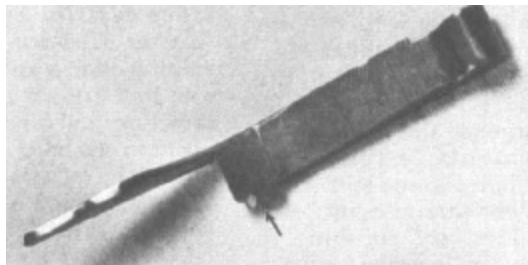
hammer and the lower angle on the front face of the lever; not the cam). Remove the safety bar and go over it very lightly to remove any really prominent burrs.

The back of the hammer, below the spur, is apt to rub on the frame or the sideplate or both; look for contact marks and polish if need be. The lower part of the hammer, below the axis pin, is quite rough, but generally doesn't touch anything, so don't worry about it.

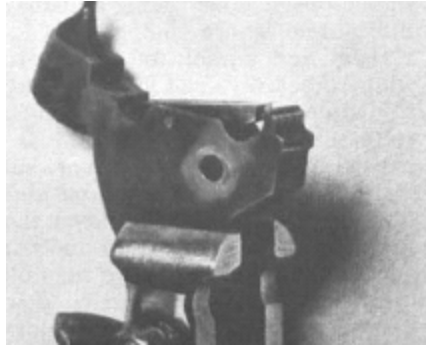
The most important engagement in a Colt, from the point of view of the D.A. pull, is that between the top of the trigger and the lower inside of the hammer strut. Tool marks run across the trigger from side to side creating a gritty hop-hop-hop sequence as the hammer rocks back. Polish it smooth. Rounding off the top shelf of the trigger at the back helps double action, but plays hob elsewhere, drastically increasing the weight of the single action pull and causing the hammer to fall off early on D.A., thus inducing misfires and perhaps throwing the gun out of time. Best to leave it as flat as the factory did, and tolerate a bit of pressure buildup at the end of the D.A. pull. Again, polish; don't remove stock.



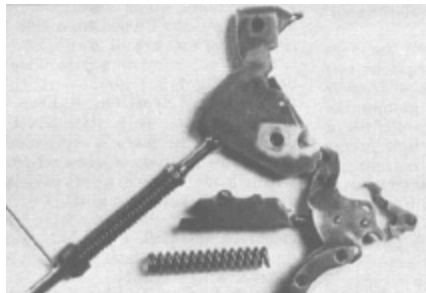
**Colt's action**, despite its seeming simplicity, is incredibly subtle and complex. Work with caution, never weaken springs in this gun.



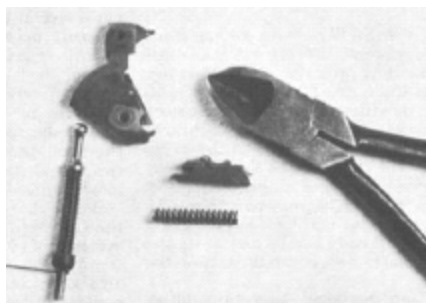
**Rebound lever** is the heart of the Colt mechanism. Underside of its extension, which bears on hand, needs polishing, but stay away from the cam (arrow) at all costs.



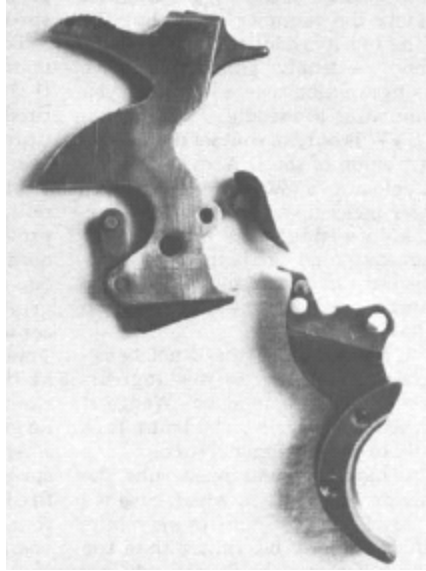
**Double action** sear surface on Smith hammer can stand a very light stoning — just enough to knock off the tall spots — but stay off the single action notch just a little above it.



**Smith & Wesson** action is straightforward and efficient by design, wants only minimal smoothing. Note hammer-trigger engagement — this is where the hammer trips off on double action.



**Smith's two massive** coil springs can both stand pruning — generally up to two coils. Bob the rebound spring first. A dehorned hammer, like this one, has less mass than normal, needs an extra margin of mainspring behind it.



**Sides and back of Colt hammer, bearing** flats on each side of trigger, can stand polishing, but trigger-strut engagement is the prime governor of the D.A. pull. Don't drift hammer pin all the way out — just far enough to free the strut.

Likewise for the hammer strut. Drift its pin far enough to remove it from the hammer and polish both its under-side and outside scrupulously. But don't change its length or profile; don't round it off at the bottom. Polishing the underside of the strut will make for a smooth double action and polishing its front face will contribute to a snappy trigger return.

Stay away from the single action sear surfaces on both trigger and hammer, and don't monkey with the mainspring. Colt hasn't made a too-stiff spring since the Great Depression, and weakening it will invariably cause misfires and a mushy trigger return.

The Colt, as we said, is a gratifying action to work on. Smoothing it up will not only take the grinds and jerks out of the pull, but will reduce its weight by two pounds or more. Ignition will be improved and trigger return will be speeded up. In short, the gun will feel like a pre-war Colt.

These instructions apply in no way to the new Mark III, which uses an entirely different mechanism and doesn't lend itself to this procedure.

### **Smith & Wesson**

Smith & Wessons usually show very fine internal machining and come with creditably smooth actions. That's fortunate, since the trigger and hammer are case hardened to an average depth of 6 or 7 thousandths, and



there's not a whole lot that can be done with them. The surface is almost glass hard, and while it's deep enough to take a bit of stoning, too vigorous an approach will break through into the softer core and the part is ruined. Just a light stoning to take off upstanding burrs (and there won't be many) is all these parts want or need.

I like to polish the rounded area at the upper back of the trigger where it contacts the hammer strut, but I'm willing to leave a bit of roughness lest I stone too deeply. This is just above the single action sear, with which you do not want to meddle. The strut on the S&W is only in contact during the first portion of the D.A. cycle. It soon rocks clear as a lower shoulder on the trigger picks up the hammer proper. I make a wishful pass with the fine Arkansas stone on both these locations, but I'm careful not to touch the adjacent single action sear notch on the hammer.

The hammer strut need not be removed, and indeed its working surface shouldn't be touched. Wedge it forward and polish its front face lightly to assist trigger return.

The hammer sometimes rubs the frame or sideplate, in which case it's best to polish the frame or sideplate, as the case may be, rather than the hammer. On my Chiefs, the cylinder latch screw protruded through and interfered with the hammer. Check that.

Other S&W components can stand a bit of work. The rebound slide wants smoothing on all sides except on top, and the frame flat on which it rides can do with polishing. Again, no stock removal or you'll foul up clearance between the hammer and the safety bar. The ramp face on the lower body of the cylinder stop and the trigger nose can both be polished for a smooth trigger return. The side of the cylinder stop body sometimes galls the sideplate; if so, polish directly on the stop.

Both the trigger and the hammer ride between bosses on the frame and side-plate respectively; those on the sideplate may be profitably polished, but be careful to stay flat on the work.

And that's about it. Be cautious and tread lightly.

The Colt springs were off limits under pain of certain malfunction. Not so the Smith. The Smith & Wesson snub comes from the factory equipped with the lustiest springs in the business. There are two of them we're interested in, both coil type, and they are so placed as to do their job in the most direct and efficient fashion possible. The rebound spring, or trigger return spring, pushes the trigger forward with such gusto that two coils

probably won't be missed. Lopping them off will help take some of the stiffness out of the trigger pull, and won't sap an iota of punch from the hammer. Removing more than two coils may result in a mushy trigger return — a clear liability in fast double action shooting. Bob the spring a half-coil at a time, trying it as you go. Prudence dictates having some spares on hand before we go grinding off springs.

The Smith hammer belts the primer a hearty smack. I've oft en found that cartridges which repeatedly misfired in other revolvers would dutifully discharge in the Chiefs. This sort of reliability is comforting. It also contributes to the stiff trigger pull, and offers safe margin for improvement. First try polishing the outside of the mainspring swivel, a cup-shaped part which seats in the grip frame and is pierced through the center by the main-spring guide rod. Then, to ease things still further, have at the spring itself, a half-coil at a time; you can cut off two full coils with no great fear.

After any weakening of the main-spring, the revolver should be test-fired double action with at least 50 rounds of each type of ammunition you expect to use. If any misfires occur, go back to a full-strength spring.

The Smith, it should be noted, is 75% impossible to reassemble with out a special tool which, fortunately, is easily made. Take a screwdriver and file or grind about 1/2" off either side of the bit, leaving a sufficient nubbin protruding at the center to enter the rebound spring coil. Each side of the spring then will rest on the shoulders of the tool, and the spring and slide may now be shoved handily into place.

Here's the philosophy of it. With the Colt, grittiness, jerkiness, unevenness of pull was the problem. We smoothed the action for smoothness' own sake, and in order to help the spring put more energy where it was needed. The Smith was smooth enough, but too stiff. Smoothing its action merely gives a bit of safety margin for spring bobbing. For it's the compounded forces of the mainspring on top of the rebound spring that make the S&W stiff on double action.

### **Charter Arms**

The Charter is a bit of a hybrid. The hammer is case hardened like an S&W, whereas the trigger and other action components are full hardened like a Colt, and can well stand working over. There's no sideplate on this gun, and polishing the inside faces of the frame with emery and crocus cloth over a file blade sometimes yields good results. Spring tension in

those Charters I've seen is about right, and I don't recommend reducing them.

### Grips

As vital as a smooth double action is for combat accuracy with the miniguns, the improvement brought about will hardly be as monumental as that which can be attained by simply screwing on a set of new grips. This point was painfully reemphasized the other day while I was testfiring a Charter Undercover. It carried the splinter-like standard factory grips and had almost no feel or sense of direction, and consequently squirmed about in the hand. Volley firing or accurate burst shooting was all but impossible, and establishing a good shooting grip from the leather was hopeless. On each shot my middle finger took a bruising blow from the trigger guard, and the right thumb was in danger of laceration by the cylinder latch. Trigger reach was so dismally short that my trigger finger kept ramming other assorted digits, and the muzzle flipped from side to side during trigger pull.

Merely screwing on a pair of well-designed combat grips — in this instance Jay Scott Gunfighters — made the miserable little beast a deadly accurate piece of equipment, and a pleasure to shoot, even with full charge loads. The grip was firm, solid, and substantial, and shifted not a whit in recoil. Recovery time was optimum, and follow up shots were rapped out in rapid succession with very pleasing accuracy.

Smith & Wesson grips are of the same configuration as the Charter's, and should be removed from the weapon and used for kindling fires.

Colt's earlier DS grips were designed upside down, being bulbous at the bottom where compactness is a virtue, and emaciated at the top where a healthy span for the encircling middle finger and the tender, recoil-absorbing web of the hand is needed. However, they are more substantial than the others, and since they ride on a larger-framed gun, they are usable if a grip adaptor and trigger shoe are added. Colt's rasp-like checkering should be sanded down flush along the backstrap for comfort's sake, and the tops of the diamonds smoothed generally to avoid undue wear on clothing. As noted earlier, Colt's new DS grips are much better, being pretty good combat types as is.

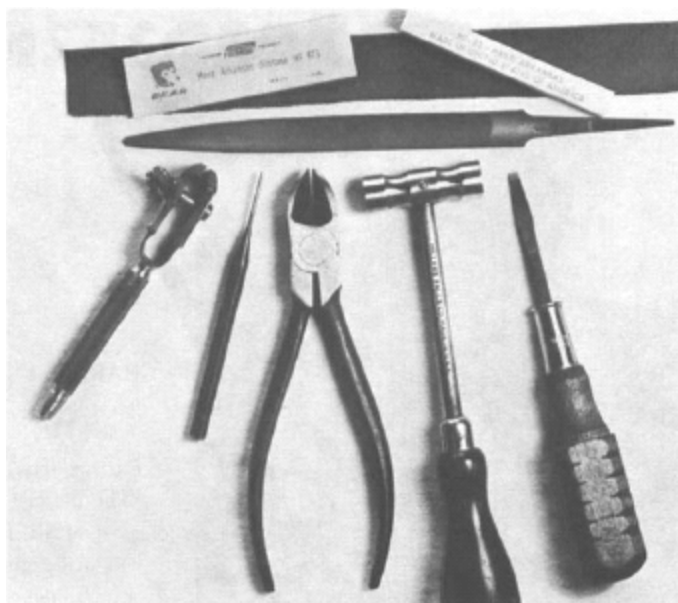
One of the most crippling liabilities of an off the-shelf snub is the rarely mentioned factor of insufficient trigger reach — the distance from the face of the backstrap to the curve of the trigger. For instance, the reach on a

Chiefs Special is a scant  $2\frac{3}{8}$ ", compared to  $2\frac{3}{4}$ " for the larger M&P. The tiny Charter, likewise at  $2\frac{3}{8}$ ", is equally as sad a case as the Chiefs. Fingers just don't ordinarily come short enough. I know one gunner whose trigger finger was amputated at the first joint, and the remaining stub fits the Charter reach just right. The Colt, being a larger-framed gun with a more sweeping trigger pull, is much better provided for — it has a full  $2\frac{1}{2}$ " reach.

The problem can be attacked from both ends. Any of these weapons will benefit from the addition of a trigger shoe. The sharp serrations and edges of the shoe should be ground down smooth prior to installation.

The reasonable, and only really effective, way to lick the problem, though, is by the installation of a set of custom combat grips which increase trigger reach by putting lumber behind the backstrap.

Steve Herrett's popular "Shooting Star" grips unaccountably fail to correct this problem. They're lovely to look on, but stop flush with the back-strap. His more recent "Shooting Ace" is almighty ugly, but puts the wood where you need it. Besides Herrett (in Twin Falls, Idaho 83301), Jay Scott Grips, of 81 Sherman Place, Garfield, N.J. 07026, or the Caray Sales Co. (Enforcer Brand Grips), 1394 15th Street, Palisades, N.J. 07650, also do things right. Charter Arms, with the introduction of their optional equipment "Bulldog" grips, became America's only gunmaker to offer decent combat stocks straight from the factory. They're good, too.



**Basic tools** for action smoothing include stones and crocus cloth(top) and (from left) small-parts vice, pin drift, spring snips, brass headed hammer, and screwdriver. File is used only to back up the cloth.

Custom grips usually add bulk by extending below the bottom of the grip straps and giving enough wood to seat the little finger. This makes for better handling, but is awkward if you carry the gun in a pocket. However, the excess timber can be whittled off flush with the straps for a conventional 2-finger grip. If your shooting style demands that the pinky be anchored, the extra bulk has to stay.

### **Other Alterations**

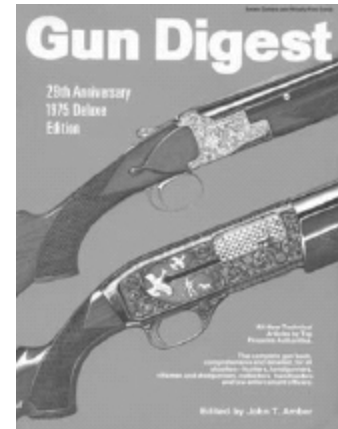
Snubs in the hands of pseudo-savants are oft en seen with the front of the trigger guard chopped out. This alteration does give more elbow room in the crowded guard, but trigger guards were designed for fingers, not elbows. So, unless you have to shoot with gloved hands, venting the guard is a poor notion, and is inherently unsafe. If the gun is inadvertently dropped or instinctively used as a bludgeon (a remarkably poor application, by the way), a chopped guard can easily bend up to jam the trigger. The function of a trigger guard is to guard the trigger, and if it's not there, it can't do it. However, slimming the leading starboard edge of the obstruction to half of full width is not a bad idea on a steel-framed Smith or Colt.

One desirable alteration is grinding off the hammer spur. This claw-like appendage, constantly snaring itself on pockets, jacket linings, and shirttails, is quite unnecessary on a gun primarily intended for double action use. Witness the justifiable popularity of Colt hammer shrouds and Smith's Bodyguard and Centennial models. A dehorned hammer can readily be cocked for single action shooting if the top edge is serrated, or even if it's not. Cock it part way with the trigger, roll the thumb over the top of the hammer, and finish the job just as if the spur were there.

These modifications will make your snub — most contrary of handguns — accurate and easily handled, a gun to bank on in the worst circumstances. A customized snub, for its purposes, is the best possible choice, and the mark of a knowledgeable shooter.

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1975



## New SIG-Sauer Pistols

Two of them, in fact, the P-220 and P-230, both designed for utilitarian service. Production samples functioned and shot well in Switzerland. ■ J.B. Wood

FOR THE PAST 25 years the beautiful SIG P-210 has been considered by many to be the most finely made of all automatic pistols. Now the Schweizerische Industrie Gesellschaft of Neuhausen, Switzerland, has developed two new pistols, to establish what will surely become a distinguished series. Both pistols, designated the P-220 and P-230, are so recently produced that it was not possible to obtain test samples before publication time.

We do, however, have extensive information on them, obtained by Editor John T. Amber during a visit to Neuhausen last year. Mr. Amber examined both models, and fired them on the SIG range. He says their performance was flawless. He also noted that neither was as finely finished as the P-210. Two possible good reasons for this: Intended for combat-military and personal-police use respectively, their utilitarian finish and less costly

construction may help to keep the price with in reason. Their old stable mate, the P-210, is expensive.

The new pistols are to be a cooperative effort, in association with the old and respected firm of J. P. Sauer & Sohn of Eckernforde, West Germany, who will actually manufacture the guns. To reflect this combination of design and production skills, the pistols will be marketed under the name "SIG-Sauer."

### **SIG P-220**

The P-220 is the larger, combat-type pistol. It has an unusual feature, a de-cocking lever, located at the top forward edge of the left grip panel. This is similar to the system used on the Sauer Model 38H pistol but, unlike the Sauer, the P-220 lever is for lowering the hammer only.

The firing pin has an automatic block which is moved only by the last fraction of trigger pull. Thus, when using the de-cocking lever, there is no chance of accidental firing, even if the thumb slips. There is also a wide safety-step on the hammer at normal rest position. Between these two systems, the P-220 will be safe even if dropped on the hammer, say the SIG people. There is no manual safety, and on this point the Swiss engineers are in complete agreement with this writer. On a double action pistol with an external hammer, who needs it?

The P-220 has an aluminum-alloy grip frame and plastic grips. The magazine release is a bottom-of-handle type. The location of the slide stop, at top center of the left grip panel, is perfect. Sights are the Stavenhagen-patent "contrast" type, these said to allow quick alignment, even in low-light conditions. These consist of a white-outlined square-notch rear sight, with a white dot inlaid into the rear surface of the post front sight. The front sight is integral with the slide, and the rear is adjustable laterally by drifting in its dovetail. Vertical adjustment will also be possible by changing rear sight units — 5 sizes will be made.



**Left-side view of SIG-Sauer P-220.**

The SIG P-220 will be available in 45 ACP, with optional conversion units for 38 Super, 9mm Parabellum, 7.65mm Parabellum, and 22 Long Rifle.

Magazine capacity is listed at only 7 rounds in 45 ACP, 9 rounds in the other centerfires. One wonders why they didn't use a larger capacity magazine, such as the one in their experimental SP 44/16, the forerunner of the P-210.

There is one constructional element of the new P-220 which, like the de-cocking lever, is similar to the old Sauer 38H arrangement. The breechlock is a separate part, secured in the slide shell by a heavy top lug at its forward end, and by a cross-pin. The front strap of the trigger guard is shaped to afford a good rest for a finger of the other hand when using the two-hand hold, a feature which has previously been available combat alterations. The unique features and cartridge options of the P-220 should make it a good competitor with the Walter P-38, Smith & Wesson M39 and M59, and Heckler & Koch P9S — the other double action pistols of comparable size.

### **SIG P-230**

The SIG P-230 will, in the U.S., be considered a pocket pistol for personal defense. In Europe, it will have some consideration as a police pistol. Externally it bears a striking resemblance to the Beretta Model 90

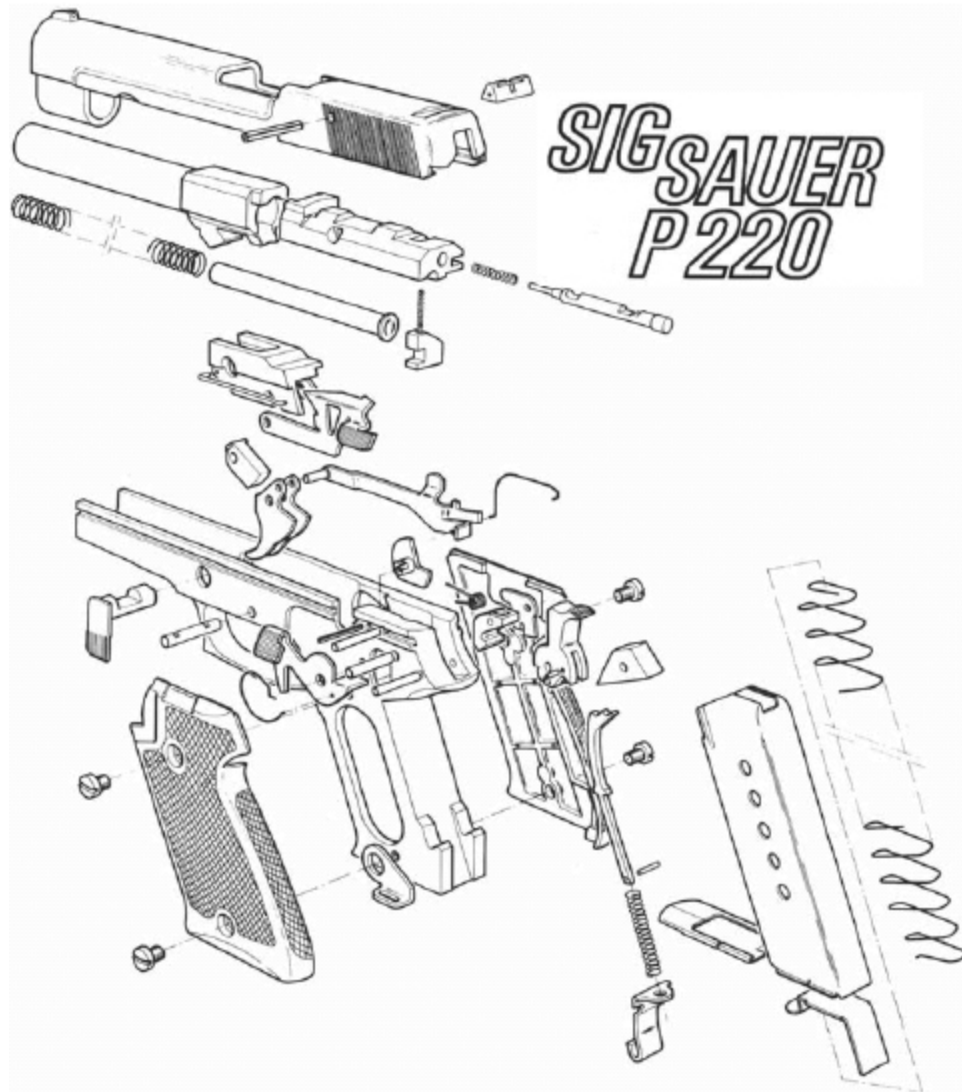


pistol. Like its big brother, the P-220, it also has the de-cocking lever. The slide stop is not external, however — it is an internal automatic type, released from last-shot hold-open by a slight retraction of the slide.

The double action P-230 also has the hammer-step and firing-pin-block safety systems of the larger pistol, an external hammer, Stavenhagen sights and an alloy frame and plastic grips. Basic chambering will be for a new loading called the “9mm Police,” with optional conversions to 9mm Short (380 ACP), 7.65mm Browning (32 ACP) and 22 Long Rifle. We have no dimensional data on the “9mm Police,” but its muzzle velocity is listed at 1110 feet per second, which is comparable to the old 9mm Browning Long. I note, however, that a different magazine is not required for conversion to the other centerfire rounds, so perhaps it is only a slightly lengthened 380, like the Russian 9mm Makarov, which also has comparable ballistics.

To handle the increased power of the new special cartridge, the slide used with that chambering is 2.47 ounces heavier than the one on the standard 380 model. The P-230 slide is one-piece, with an integral breechblock. In its size and price range, the pistol will be compared with the Walther PPK-S, Beretta Model 90, and Mauser HSc. It should be a strong sales contender, especially in the “9mm Police” version.

Specifications	
SIG-Sauer P-230	SIG-Sauer P-220
Weight: 460 grams - 16.23 oz. (380 ACP)	Weight: 830 grams - 29.29 oz. (9mm Parabellum)
Length: 168mm - 6.61 in.	Length: 198mm - 7.79 in.
Height: 119mm - 4.68 in.	Height: 143mm - 5.62 in.
Width: 31mm - 1.22 in.	Width: 34mm - 1.34 in.
Barrel: 92mm - 3.62 in.	Barrel: 112mm - 4.40 in.



Though not as costly as the celestial P-210, the new pistols are relatively expensive. The P-220 lists at 640 Swiss francs, the smaller P-230 at 580. At early 1974 exchange rates this comes to \$192 and \$174 respectively. Whether these are European prices or the cost in the U.S. is not known at this time. I doubt that they include the import tax. SIG-Sauer have set the approximate availability dates as follows: P-230 7.65mm

(32 ACP) 9mm kurz

Oct., 1974

(380 ACP) "9mm Police"

Nov., 1974

March, 1975

P-220 9mm Parabellum Aug., 1975

Considering their features, and the two names they bear, these two should be worth waiting for! •



**SIG/Sauer P-220** field stripped.

### **Operating Principles to the SIG/Sauer P-220**

With the pistol loaded the first shot is fired by pulling the trigger double action. The trigger moves the trigger rod, which lifts the sear out of the hammer notch.

At the same time, the trigger rod moves the safety lever, which takes the lock pin out of engagement with the firing pin, releasing the firing pin just

before the shot is fired. The hammer is swung forward by the hammer spring to strike the firing pin, firing the cartridge.

Recoil from the fired cartridge operates the system (comprising the slide and barrel) back against the recoil spring. After recoiling about 3mm, the lock between the barrel and slide is released, the barrel swinging down and being held in place. The slide continues its backward motion, cocks the hammer, extracts and ejects the empty case, and compresses the recoil spring. The slide recoil stroke is limited by a stop on the frame. The recoil spring now forces the slide forward, stripping a cartridge from the magazine into the chamber. Just before reaching battery position, the barrel is again locked to the slide. The trigger rod can now engage the sear and the gun is ready for single action firing (hammer cocked.)

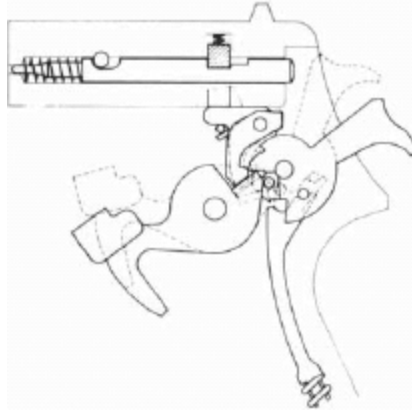
After firing the last shot the slide is caught by the slide stop, actuated by the magazine follower. The slide stop is so-located that it can be used with the thumb of the shooting hand with out shifting the gun from the line of fire as a loaded magazine is inserted.

### **SIG/Sauer P-220 Operational Data**



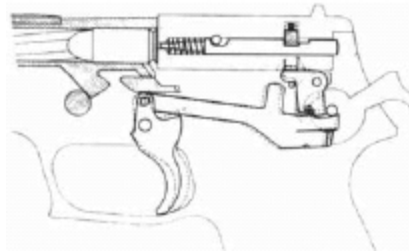
### **Double-Action Triggering**

If the hammer is not cocked, the shot can be fired double-action. The trigger is squeezed, cocking the hammer via the trigger rod, which also presses the safety lever against the lock pin. The sear is moved away from the hammer and the firing pin is released by the lock pin. Completing the trigger pull lifts the hammer out of register and fires the shot.



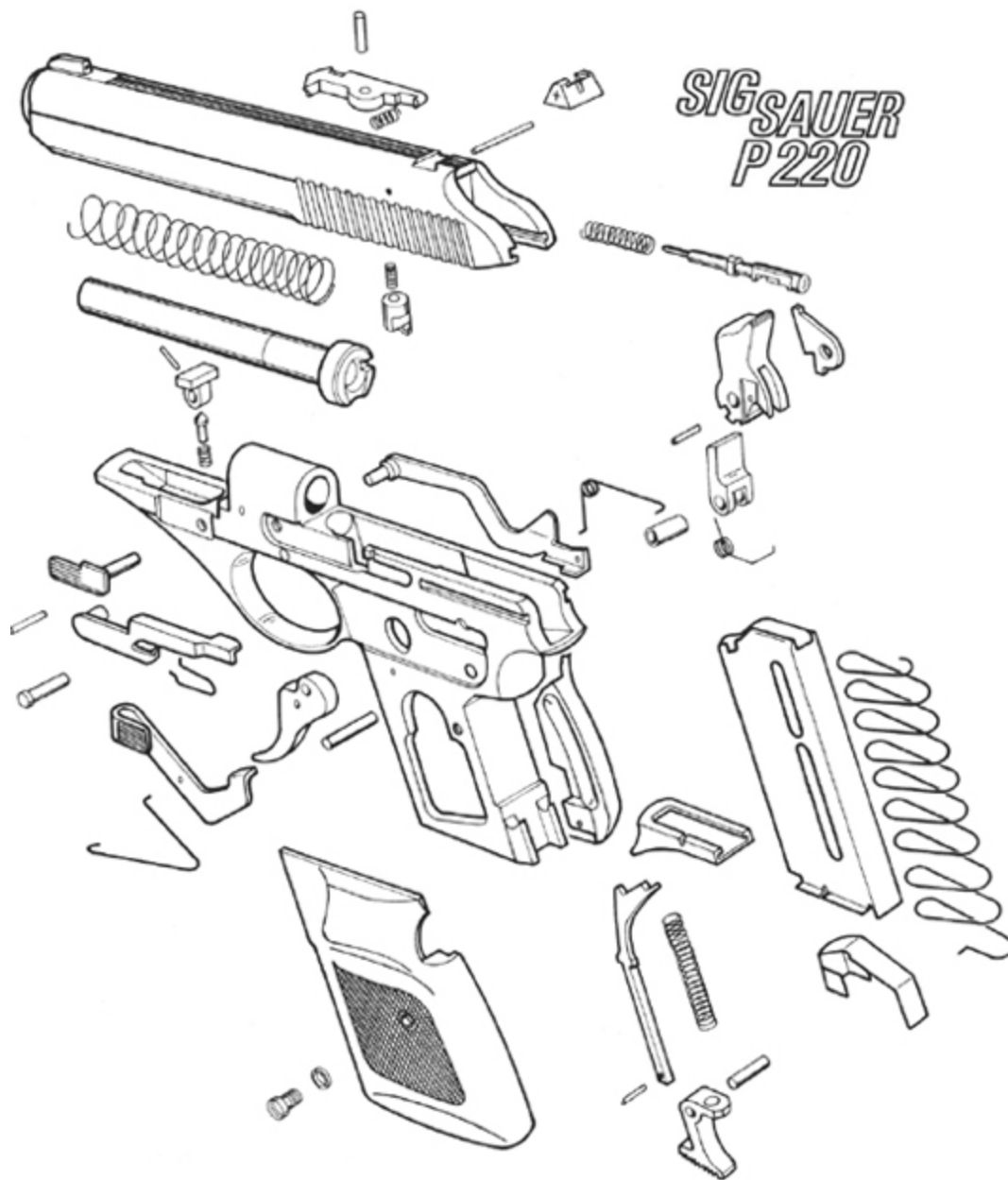
### **De-cocking Lever and Hammer Safety Catch**

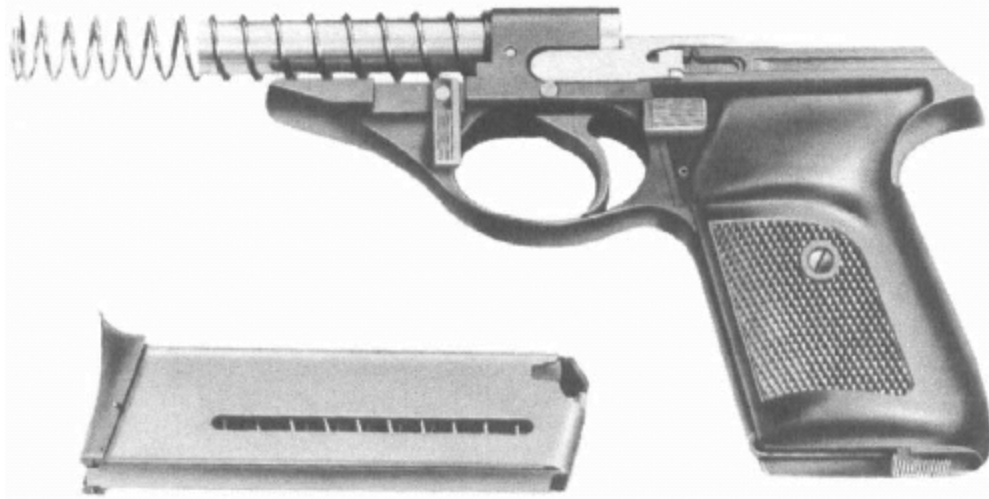
The de-cocking lever permits lowering of the hammer into the safety notch so the loaded pistol can be safely carried. The safety notch is the rest position for the hammer. The firing pin is always blocked during and after de-cocking.



### **Firing Pin Safety Catch**

For maximum safety, the firing pin is locked. It is released automatically by trigger action without manipulation of any lever. The catch will fully fire.





### **Operating Principles of the SIG/Sauer P-230**

With the pistol loaded the first shot is fired by squeezing the trigger double action. The trigger moves the trigger rod, lifting the sear out of the hammer notch.

At the same time the trigger rod moves the safety lever, taking the lock pin out of engagement with the firing pin and releasing the firing pin just before the shot is fired. The hammer is swung forward by the hammer spring to strike the firing pin, firing the cartridge.

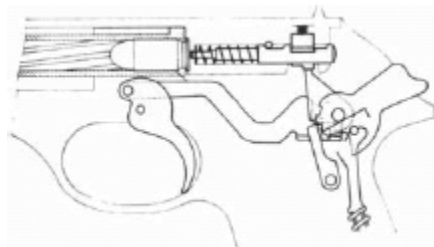
The forces of recoil push the slide back against the recoil spring, cocking the hammer, extracting and ejecting the spent case. The slide recoil stroke is limited by a stop on the frame. The compressed recoil spring now pushes the slide forward, stripping a cartridge from the magazine into the chamber. With the slide in battery position the trigger rod again engages the sear, readying the gun for firing.

After firing the last round the slide is held open by the slide stop, actuated by the magazine follower.



**SIG/Sauer P-230** right-side view.

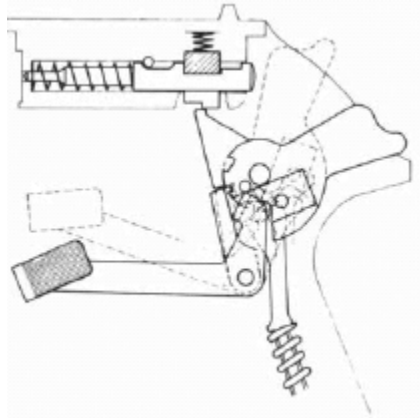
### **SIG/Sauer P-230 Operational Data**



#### **Double-Action Triggering**

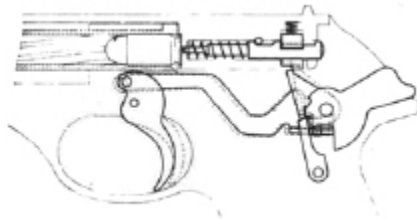
If the loaded pistol is not cocked, the shot can be fired by way of double-action. The trigger is squeezed, cocking the hammer via the trigger rod, and the safety lever is pressed against the lock pin. The sear is moved away from the hammer and the firing pin released by the lock pin. Further pulling of the trigger lifts the hammer out of register and fires the shot.





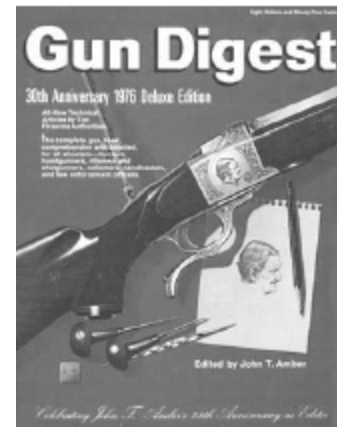
### **De-cocking Lever and Hammer Safety Notch**

The de-cocking lever permits lowering of the hammer into the safety notch so that the loaded gun can be safely carried. The safety notch is the rest position of the hammer. The firing pin is always blocked during and after de-cocking.



### **Firing Pin Safety Catch**

Because of the automatic firing-pin safety catch, the pin is locked until just before the hammer is released. The safety catch is not released until the shot is intentionally fired. Even if dropped with the hammer cocked, the gun will not fire.



# Handgun Stopping Power

The ability of the handgun's bullet to act as an effective deterrent in combat or self-defense has been of intense interest for many years — and never more so than today. Here is a carefully researched exploration of various past stopping power formulas, correlated and critically compared. ■ Kenneth L. Walters

## Introduction

**T**HE PROBLEM of calculating handgun stopping power has been of interest to sportsmen and military men for decades. As early as 1927, J.S. Hatcher was proposing an empirical formula for relative stopping power (RSP) based largely on handgun projectile kinetic energy.<sup>1</sup> By 1935 Hatcher had changed his method so that RSP was proportional to projectile momentum.<sup>2</sup> This formula, Hatcher's second, and variations thereof, have been in use to the present day.

With in the past few years several articles have appeared which contain variations of Hatcher's equation<sup>3,5,7</sup> Thus it seems appropriate to reexamine the RSP formula, compare the several implied alterations, and examine their results. Of the three variations discussed, all differ from Hatcher's second formula only in the number of terms sacrificed in the name of computational simplification.

## Hatcher's RSP Calculation

For reasons no longer obvious, General Hatcher presented his second RSP calculation in prose only. Thus the first workable formula of which the author is aware appeared in 1972 in the excellent book by M.H. Josserand and J. A. Stevenson.<sup>11</sup> These authors postulated, Equa. (1):

$$RSP = WVAyH$$

where W = bullet weight in grains,  
V = initial velocity in feet per second,  
A = cross-sectional area in square inches,  
y = an empirical bullet-shape factor discussed later,  
and H = Hatcher's unit of bullet mass,  
i.e., Hatcher's Constant.

Hatcher's own work clearly indicates the formula to be that shown above but with out the last term, the Hatcher Constant, and using bullet mass, M, instead of bullet grain weight. Unfortunately this equation (Equation 2 below) yields values inconsistent with Hatcher's own published results. To quote Josserand: "those who endeavor to work a given cartridge through the Hatcher formula (Equation (2) and arrive at a figure for RSP which will correspond to those Hatcher gives in his tables are foredoomed to disappointment; the esteemed general used a unit of mass known only to himself, and did not leave the key to posterity."<sup>3</sup> Josserand, however, successfully back calculated and determined the missing constant to be 0.00000221.



**Hatcher's Constant**

As it seems difficult to believe General Hatcher deliberately obscured his own calculations, the author has examined Hatcher's constant in detail, and found a nearly four-decade old error. Consider the following steps necessary to convert bullet weight in grains to bullet mass as required by Formula 2. First, convert the bullet weight in grains to the corresponding weight in pounds. For a bullet weighing one grain this is: 1 grain = 1 grain/7000 grains per pound = 0.0001428 lbs. Second, convert the bullet weight in pounds to the corresponding bullet mass. Again, for a one-grain bullet this is:

Equation (3)

mass = bullet weight in pounds

acceleration of gravity = 0.0001428 lbs. 32.16 ft/sec<sup>2</sup>

=0.00000444 lbs-sec<sup>2</sup>/ft

This value for the mass of a one-grain bullet is clearly twice Hatcher's constant, and the factor of two comes directly from an error in Hatcher's formula for projectile momentum. Hatcher states: "Note — if the energy and velocity of a bullet are known, the momentum is obtained by dividing the energy by the velocity."<sup>2</sup> The correct expression is obtained, however, by dividing twice the energy by the projectile velocity.

Oddly enough Hatcher's error has been repeated quite recently. Jeff Cooper, in his interesting article "Stopping Power Revisited," states: "General Hatcher's use of mass, measured in pounds divided by twice the constant of gravity... does give us a physically correct measure of momentum in pounds/feet."

As the General may well have known, his error is of no real consequence. Its net effect is to simply halve an arbitrary multiplier used in his bullet shape factors.

Smith & Wesson's Model 66, the Combat Magnum revolver in stainless steel.

Hatcher's formula as presented by Josserand (Equation (1)) is essentially correct. Its only, minor fault is the use of a magical multiplier, H, determined by back calculation. To eliminate this difficulty and for ease in comparisons with the other equations to be discussed, Equation (1) can be rewritten as:

$$\text{RSP} = \frac{1}{2(32.16)} \frac{WV}{7000} A y \quad \text{Equation (4)}$$

### Alternate RSP Equations

Formulas 4 thru 7, as indicated below, represent the variations of Hatcher's equation, intentionally or otherwise, known to the author. Equations 6 and 7 have been obtained from secondary sources since the author's library does not contain the original works.

Hatcher's RSP=	$\frac{1}{2(32.16)}$	$\frac{WV}{7000}$	$A y$	Equa. (4)
Cooper's RSP=		$\frac{WV}{10000}$	$A$	Equa. (5)
Taylor's KD=		$\frac{WV}{7000}$	Caliber <sup>5</sup>	Equa. (6)*
Keith's p/ft		$\frac{WV}{7000}$	<sup>5</sup>	Equa. (7)*

\*These equations were probably intended for use with rifle data, where the factors omitted from Hatcher's formula are considerably less critical.

Since it seems generally accepted that stopping efficiency of the normal round-nose jacketed 45ACP bullet is twice that of the standard round-nose lead 38 Special bullet, all 4 indicators of stopping power will be used on these two cartridges. The necessary data used are as indicated in the Table and marked by an asterisk. Considering the 38 Special first, Hatcher's method yields 30.10 vs 61.83 for a ratio of 1:2.05. Similarly Cooper's yields 13.35 vs 30.48 (1:2.28), Taylor's 6.79 vs 12.60 (1:1.86), and Keith's 19.07 vs 27.93 (1:1.46).

### Effects of Approximations

The main differences between Formulas 4 thru 7 are the increasing number of terms either dropped or approximated. While the author has insufficient references to decide if this is an intentional approximation in Taylor's and Keith's work, it clearly is in Cooper's equation.

Consider the following quotes.<sup>4</sup>

*"General Hatcher's highly educated guess should be the standard. It was there first, it is as valid as anything we have, and it is everyone's property".... To repeat, I do not advocate the replacement of the Hatcher Scale. I only suggest that you can do my 'short form' (Equation (5) in your head, while the General's calculations are too cumbersome for that."*

To assist in this mental calculation, Cooper provides the A/0.102 ratio worked out for all real cases of interest. His table, however, lists the wrong A value for the 44-caliber case and the A ratio quoted, using either the value presented or the correct one, is also in error.

If the whole point of the various “short forms” of Hatcher’s equation is simplification, there is obviously a way of greatly reducing the work in Hatcher’s equation with out sacrificing any of its inherent value. This can be done by just dropping all the physical conversion factors.

$$RSP = \frac{WVAy}{1,000,000} \quad \text{Equation (8)}$$

The factor of 1,000,000 is used to more conveniently place the decimal point. This could be done before actual calculation by dividing the bullet-grain weight, bullet velocity, and y values all by 100 each. With this simple task done the formula becomes:

$$RSP = WVAy \quad \text{Equation (9)}$$

For the two bullet comparisons previously discussed, this equation (or Equation 8), yields identical values of 13.62 vs 27.98 for a ratio of 1:2.05, exactly that predicted by Hatcher’s second equation. Regardless of the formula used, the great majority, this author included, will need paper and pencil to do the calculations. Thus there seems to be no real reason for using any approximation technique (such as Equations 5 thru 7) since the price paid is a possible severe loss of accuracy. For these calculations, the reader is advised to use either Equations 1, 4 or 8. All yield the same relative RSP values and Equation 8 is particularly nice because no unnecessary conversions are made.

Note that the answer obtained from Equation 9 can be easily converted to those obtained from Equations 1 or 4 by simply multiplying the results by 2.21. Only Equations 1 and 4, however, will directly give RSP results exactly like Hatcher’s results.



### **Expanding Bullets**

M.H. Josserand and JeffCooper<sup>3,4</sup> have both realized the possible inability of the RSP method in handling expanding bullets. As such handgun projectiles were not even dreamed of in the 1930s, this is more than understandable. It is the author's contention, however, that Hatcher's calculation will work here also. Based largely on the excellent discussion of expanding bullets given by Cooper<sup>4</sup>, there seem to be at least two ways to handle this difficulty.

Descriptive Ballistics Information <sup>1</sup>				Ballistics Information Necessary for Calculations <sup>3</sup>				Handgun Stopping Power <sup>5</sup>					
Cartridge	Barrel Length	Data Source	Bullet (grains)	Velocity (fps)	Area Col. 1	Shape Factor Col. 2	Caliber Col. 3	Product Col. 4 <sup>4</sup>	Cooper's RSP	Keith's p/ft	Taylor's KO	Equation 8	Hatcher's RSP
22 LR	2 1/4	17	40	860	0.039	1000	0.22	34400	1.32	4.91	1.08	1.34	2.96
	6	3	40	1060	0.039	1000	0.22	42400	1.62	6.06	1.33	1.65	3.65
22 LR H.V. <sup>2</sup>	2 1/4	17	37	897	0.039	1350	0.22	33189	1.27	4.74	1.04	1.75	3.86
	6	3	40	1125	0.039	1350	0.22	45000	1.72	6.43	1.41	2.36	5.26
25 ACP	2	3	50	810	0.049	900	0.25	40500	1.95	5.79	1.45	1.79	3.95
32 ACP	4	3	77	900	0.076	900	0.31	69300	5.16	9.90	3.07	4.74	10.48
380 ACP	4 7/16	14	95	925	0.102	900	0.355	87875	8.79	12.55	4.46	8.07	17.83
380 ACP H.V. <sup>2</sup>	4 7/16	14	88	1104	0.102	1350	0.355	97152	9.72	13.88	4.93	13.38	29.57
	3 3/4 (assumed)	18	88	1040	0.102	1350	0.355	91520	9.15	13.07	4.64	12.60	27.85
38 Super	5	3	130	1280	0.102	900	0.355	166400	16.64	23.77	8.44	15.28	33.76
9mm Luger	4	3	124	1120	0.102	900	0.355	138880	13.89	19.84	7.04	12.75	28.18
9mm Luger H.V. <sup>2</sup>	4 (assumed)	10	108	1280	0.100	1350	0.355	138240	13.55	19.75	7.01	18.66	41.24
38 Special	2	12	200	572	0.102	1000	0.356	114400	11.44	16.34	5.82	11.67	25.79
	4	15	158	845	0.102	1000	0.356	133510	13.35	19.07	6.79	13.62	30.10
	6	13	158	850	0.102	900	0.356	134300	13.43	19.19	6.83	12.33	27.25
38 Special H.V. <sup>2</sup>	2	11	110	1030	0.100	1350	0.3564	113300	11.11	16.19	5.77	15.30	33.80
	3 1/2	11	110	1135	0.100	1350	0.3564	124850	12.24	17.84	6.36	16.85	37.25
	6	11	110	1295	0.100	1350	0.3564	142450	13.97	20.35	7.25	19.23	42.50
357 Magnum	2 1/2	15	158	1128	0.102	900	0.3564	178224	17.82	25.46	9.09	16.36	36.16
	6	15	158	1298	0.102	900	0.3564	205084	20.51	29.30	10.46	18.83	41.61
	8 3/4	3	158	1410	0.102	1100	0.3564	222780	22.28	31.83	11.36	25.00	55.24
357 Magnum H.V. <sup>2</sup>	3 1/2	11	110	1300	0.100	1350	0.3564	143000	14.02	20.43	7.28	19.30	42.66
41 Magnum	6	16	210	972	0.132	1100	0.410	204120	26.42	29.16	11.96	29.64	65.50
	6	16	210	1386	0.132	1100	0.410	291060	37.67	41.58	17.05	42.26	93.40
44 Magnum	6 1/2	3	240	1470	0.146	1250	0.429	352800	50.50	50.40	21.62	64.39	142.29
45 ACP	5	15	230	850	0.159	900	0.451	195500	30.48	27.93	12.60	27.98	61.83
44 Special	3	19	246	1000	0.146	900	0.429	246000	35.21	35.14	15.08	157.88	71.44
	3	19	158	1100	0.146	1250	0.429	173800	24.88	24.83	10.65	154.92	70.10
9mm Police	3.6	20	95	1050	0.102	900	0.355	99750	9.98	14.25	5.06	44.72	20.24
380 ACP	3.6	20	95	984	0.102	900	0.355	93480	9.35	13.35	4.74	41.91	18.97
32 ACP	3.6	20	77	984	0.076	900	0.31	75768	5.65	10.82	3.36	25.31	11.45
22 LR	3.6	20	40	968	0.039	1000	0.22	38720	1.48	5.53	1.22	7.38	3.34
45 ACP	4.4	20	230	804	0.159	900	0.451	184920	28.83	26.42	11.91	129.24	58.48
22 LR Conv. Unit	4.4	20	40	968	0.039	1000	0.22	38720	1.48	5.53	1.22	7.38	3.34

1 — Barrel length and velocity measuring devices used affect reported velocity, hence, indirectly, all indices of handgun stopping power indicated.

2 — Values reported for stopping power of high velocity expanding bullets should be considered as an absolute upper limit. It is assumed that these bullets arrive on target with sufficient velocity for proper expansion, and that the bullet expands correctly.

3 — Cross-sectional bullet area in square inches is represented in equation 1, 2, 4, 5, 8, 9 and 10 by the symbol A and listed in Column 1.

The empirical bullet shape factor is represented in equations 1, 2, 4, 5, 8, 9 and 10 by the symbol y and listed in Column 2.

4 — Bullet caliber as used in Equation 6 is listed in Column 3. 4 — Bullet weight times bullet velocity is necessary in all the methods for calculating handgun stopping power. This intermediate result is provided in Col. 4.

5 — Cooper's RSP is calculated by multiplying the entry in Column 4 by that in Column 1 and dividing the result by 1020.

Keith's p/ft is calculated by dividing the entry in Column 4 by 7,000. Note the ease in interconverting between Taylor's and Keith's indices.

Taylor's KO is calculated by multiplying the entry in Column 4 by that in Column 3 and dividing the result by 7,000.

Entries in Equation 8 are calculated by multiplying the entry in column 4 by the entries in both Column 1 and Column 2. This result is divided by



1,000,000. Note Equation 8 results are related to Hatcher's values by multiplying the former by 2.21.

Hatcher's RSP is calculated by multiplying the entry in Column 4 by the entries in both Column 1 and Column 2. This result is then divided by 452488.6877 or multiplied by 0.00000221 whichever is considered easier.

High-speed expanding bullets depend on two factors in order to effect their increased stopping power. These are, obviously, their increased velocity upon target impact, and the large wound caused by their expansion. Mr. Cooper's contribution to the RSP calculation rests upon his apparent ability to gather data as to the reliability of these expanding bullets when they encounter a human target.

Given this type of data, which some have called "wound ballistics," the RSP equation, Equation 8, could be altered to include the probability of bullet expansion,  $p$ , and the expected area increase after contact,  $A'$ . This inclusion would modify the RSP equation to:

$$RSP = 2.21 WVAy (1 + pA') \text{ Equa. 10}$$

$$\text{where } p = \frac{\text{number of successful bullet expansions}}{\text{total number of cases examined}}$$

$$A' = \frac{\text{total area after contact minus } A}{6A}$$

The factor of 6 in the  $A'$  expression is to limit the size the  $pA'$  term can multiply a given RSP calculation. For a 100% certain bullet expansion  $p=1.00$ , its maximum value. Thus if the total area after contact could be expected to be no larger than  $2.5A$ , the  $1 + pA'$  term would yield:

$$\begin{aligned} 1 + pA' &= 1 + 1(2.5A - A)/6A \\ &= 1 + A(2.5 - 1)/6A \\ &= 1 + 1.5/6 \\ &= 1.25 \end{aligned}$$

This factor of 1.25 coupled with a probably  $y$  factor of 1100 produces an Equation 4 type RSP value of 30.11 for the high speed 380 vs 29.57 predicted using  $y=1350$ . Thus Equation 10 could predict a RSP value for this cartridge ranging from 24.09 to 30.11, depending solely on the  $p$  and  $A'$  values used.

The  $2.5A$  value for total area after contact seems reasonable since this yields a value of  $0.102(2.5)$  or  $0.255$  for a 38-caliber bullet. This implies that the 38 is approximately 0.57 caliber upon contact. Should this value be too conservative, the 6 could be replaced with something more reasonable.

Such  $p$  and  $A$  values would have to be determined by examination of large amounts of data and would have to be determined separately for each major type of bullet used, i.e., 9mm, 38 Spl., etc.

As an interim method, until accurate  $p$  and  $A'$  values can be reliably determined, the author suggests that the RSP equation could be used in its current form, Equation 8 or alternately Equation 4, with the modification that  $y = 1350$  for expanding bullets. With this empirical addition, a deliniation of the  $y$  values becomes:

$y=900$  for jacketed bullets with round nose,  
1000 for jacketed bullets with flat points or lead bullets with rounded noses,  
1050 for lead bullets with blunt rounded points or with small flat on point,  
1100 for lead bullets with large flat on point,  
1250 for lead bullets with square point or the equivalent, and  
1350 for high-velocity, expanding bullets.

Since the use of this new  $y$  value is an attempt to expand Equation 8 to allow for high-speed expanding bullets, if  $p$  and  $A'$  values are later determined, the new  $y = 1350$  must be dropped to avoid duplicate correction.

It should be noted that Equation 10 is completely compatible with equations 1 and 4 for normal, non-expanding bullets assuming the factor of 1,000,000 has been divided out as was done in Equation 9. In Equation 10 both the probability of bullet expansion,  $p$ , and the area increase  $A'$  will be very nearly zero, and so the  $pA'$  product will be even closer to zero. Thus the  $1+pA'$  term will approach unity, yielding an equation equivalent to Equation 4.

### Sample Calculations

Since several different calculations are being compared, a tabular arrangement of the data is helpful. One such arrangement is indicated in the Table, which also provides a simplified calculational technique for all the methods discussed.

Hatcher's RSP is calculated by multiplying the entry in Column 4 by the entries in both Column 1 and Column 2. This result is then multiplied by 0.00000221 or divided by 452488.6877, whichever is preferred.

Equation 8 values are calculated by multiplying the entry in Column 4 by the entries in both Column 1 and Column 2. The resulting product is

divided by 1,000,000. These values can be converted to Hatcher's RSP numbers by a multiplication by 2.21.

Keith's p/ft results are obtained by dividing the entry in Column 4 by 7,000. Taylor's KO is obtained by multiplying the result of the Keith calculation by the entry in Column 3.

Cooper's RSP is calculated by multiplying the entry in Column 4 by that in Column 1 and dividing the result by 1020.

For the specific case of the 45ACP cartridge discussed earlier and marked with an \* in the Table, these computational schemes are worked out below. Note, with the recent revolution in inexpensive electronic calculators, including the Texas Instrument Model TI-3500 used by the author, no real effort is necessary to obtain the results indicated. Since it is not now possible to accurately evaluate the p and A' terms in Equation 10, no such results are included in the Table.

$$\begin{aligned}\text{Equation 8} &= \text{Col. 4 (Col. 1) (Col. 2)/} \\ &\quad 1,000,000 \\ &= 195,500 (0.159) (900)/ \\ &\quad 1,000,000 = 27.98 \\ \text{Hatcher's RSP} &= \text{Equation 8 Value (2.21)} \\ &= 27.98 (2.21) = 61.83 \\ \text{Keith's p/ft} &= \text{Col. 4/7,000} = 195,500 \\ &\quad /7,000 = 27.93 \\ \text{Taylor's KO} &= \text{Keith's Value (Col. 3) =} \\ &\quad 27.93 (0.451) = 12.60 \\ \text{Cooper's RSP} &= \text{Col. 4 (Col. 1)/1020 =} \\ &\quad 195,500 (0.159)/1020 = \\ &\quad = 30.48\end{aligned}$$

### For the Sake of Completeness

In addition to the approaches to calculating RSP based on the Hatcher method, two other articles have appeared in recent years dealing with this problem but from an entirely different approach.<sup>8,9</sup>

For those who may have seen these works, they are referenced but as yet do not appear to be workable theories from which RSP type calculations can be made.

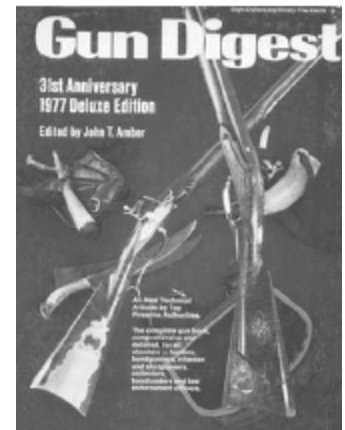
### Conclusions

The real proof of any theory is its ability to stand the test of time. Hatcher's relative stopping power theory has existed for nearly 40 years with out ever being successfully challenged. Indeed, its only minor flaw, the non-inclusion of high speed expanding bullets, may be easily overcome by the methods contained herein.

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1977



## A Pair of Autos

The Gun Control Act of 1968 banned importation of numerous small handguns, inviting manufacture of such types. Here are details of two that answered the clamorous call. ■ George C. Nonte, Jr.

**P**OCKETSIZE auto pistols are the rage these days. The countrywide demand for such arms is probably far greater today than at any time in our history. In spite of — perhaps partly because of — emotional clamor for the prohibition of handguns, especially small ones, more people than ever want or feel they need a small sidearm. It isn't because everyone feels he must carry a pistol — though enough do that as a measure of self preservation — but that nearly every household in the land feels more secure with a gun at hand.

Private citizens aren't the only market. Today we have almost a million armed law-enforcement officers, counting private security and investigative agencies. Nearly all of these people have or want at least one spare gun, and a pocket-size pistol is usually preferred.

At the time certain imports were restricted by the Gun Control Act of 1968 there was not one worthwhile pocket auto pistol produced in this

country. Probably a dozen companies have been working ever since to remedy that lack, and over the past few months we've been trying some of their wares.

First received was the Back Up 380, a stainless steel very small handgun designed by Harry Sanford of Auto Mag fame. There was no advance fanfare, PR program or hoopla. When it was truly ready, with production guns coming off the machines, they were advertised and sold. The second gun is the Sterling 380, a larger, plain steel double-action type. This one was announced and press-released to death two years before production!

The two guns represent completely different design approaches. Their only points of similarity are: both are autoloaders in 380 ACP caliber, and both use advanced metal-fabrication technology.



**Above is the Sterling 380**, with slide-removal screwhead forward of trigger pivot. At right is the new Back Up, 380 also, with its grip safety fully rearward, showing that the gun is cocked.

### **Comparison**

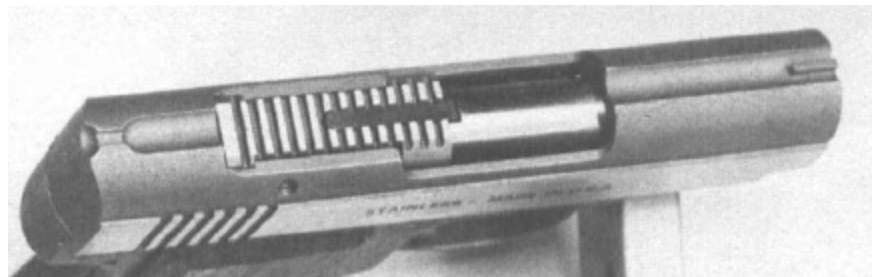
The Back Up gun is very small ( $3\frac{3}{4}'' \times 5''$ ), weighs a mere 17 ounces empty, and is of concealed-hammer, single-action design. Made entirely of stainless steel, it's intended solely as a very basic, simple gun for concealed use by law officers. On the other hand, the Sterling measures  $4\frac{3}{4}'' \times 6\frac{1}{2}''$  and

weighs 27 ounces. It has an exposed hammer, double-action lockwork, large magazine capacity, and an adjustable rear sight.

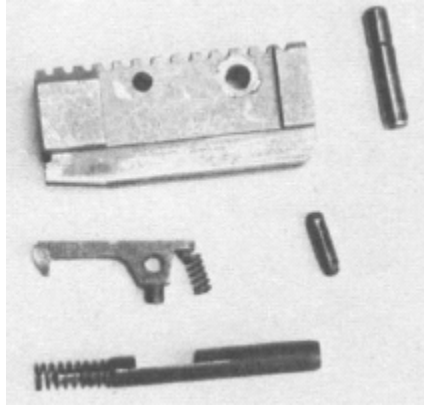
Both guns were put through the same tests and examinations. Functionally, both were impressive. The firing of several hundred cartridges, using different makes and types from' every imaginable stance, saw not one legitimate malfunction. The only bobbles were failures to extract, through chamber fouling, which was deliberately allowed to accumulate. We wanted to learn at what point it would cause trouble.



**This right-side view** of the Back Up reveals a simple, uncluttered design.



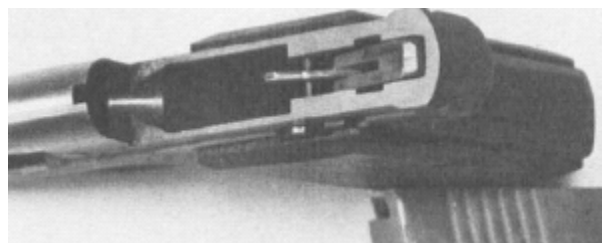
Here the cross-grooved removable breechblock is seen seated in its recess in the slide. Note also integral sights cast into slide.



**Back Up slide** is removed by pushing it forward slightly, lifting up the rear and easing it forward off barrel.



**Back Up's breechblock** is easily taken down by pressing out the loose extractor pin; round lug on extractor bottom (beneath pinhole) retains firing pin by entering the cutout. Pin at upper rights holds breechblock to slide.



**Seen here** are fixed ejector (straddled by the hammer) and the conventional feed ramp.

At close range the guns are equally accurate, though the heft, length, and better sights of the Sterling make it the easier of the two to shoot well. Beyond 25 yards the Sterling has a distinct edge. On the other hand, the Back Up was designed for close-in, point-and-shoot work, with length and sights secondary to compactness and concealability.



There is a distinct handling difference between the two, as would be expected. The short-coupled, short-butted Back Up fits the hand less well, though its magazine finger-rest helps a good deal. Its light weight accentuates recoil, and it's a handful in rapid fire. The weight and bigger butt of the Sterling make it more controllable, and apparent recoil is less.

The Sterling reloads easier and faster, with its behind-the-trigger magazine catch and automatic slide stop, which holds the gun open after the last shot. The Back Up has a butt-mounted catch and no slide stop.

The Sterling is easily dismounted with out tools, but the Back Up requires a punch, a hammer and a long, thin screwdriver or similar instrument.

Don't let my comments mislead you into thinking that the Back Up is the less satisfactory pistol of the two. I emphasize again that several otherwise-desirable features were deliberately left out of the Back Up design to achieve compactness and light weight. The Sterling is more of a general-purpose pistol, whereas the Back Up is a highly specialized hideout gun. The Sterling is best for its purposes, but in the job for which it was designed, the Back Up is superior.

### **The Back Up**

Mechanically the Back Up is innovative in several ways. The barrel is welded to the frame; the removable breechblock is with in the slide, and the grip safety pops out only when the hammer is cocked, thus serving as a cocking indicator.

Disassembly is unusual. Magazine out, chamber cleared, hammer cocked: observe the blued pin in the slide's left side, above the grasping serrations; with a correct-size drift and a small hammer, rap the pin sharply to unseat it from the internal lock ring, then push it out to the right; invert the slide and shake out the breechblock, using a dowel or pencil inserted through the magazine well if necessary.

Next, with the gun upright, reach in through the breechblock recess with a rod or screwdriver and press the hammer down 1/16" or more and push the slide forward over it; lift up the rear of the slide to clear its guide ribs; ease slide forward, up and off barrel. Shake the recoil spring and guide out of the frame and field-stripping is complete.

See the photo caption for taking the breechblock apart.

Magazine capacity is 5; actually 6 rounds can be placed in it, but the magazine cannot then be seated fully in the gun. To obtain 6-round availability, load 5 in the magazine, seat it, cycle the slide to chamber the top round, then remove the magazine and insert one more round and replace it in the gun. Of course, engage the manual safety immediately after chambering the first round.

Grips on the Back Up are smooth walnut, secured by socket-head screws (the only screws in the gun). Sights are cast integrally with the slide, recessed in a rounded channel running the length of the slide. The sides of the slide and trigger are polished bright, as is the top of the breechblock; the rest is sandblasted, leaving the matte, grey color of uncoated stainless steel.

### **The Sterling 400**

The Sterling M400's lockwork is of conventional double-action type, quite simple, with a single bar, on the right side, connecting the trigger to the hammer and sear. The bar also acts as a disconnecter. The magazine catch looks like the Browning design but is not. A long leaf spring rides under the right grip with the catch plunger attached to its front end. The plunger passes through the frame behind the trigger to protrude on the left side.

The slide-mounted manual safety appears like the Walther type but isn't. It does not drop the hammer when engaged, nor does it block the sear. The hammer may still be dropped, manually or by trigger action, but is prevented from striking the firing pin by the safety shaft. The shaft shrouds the head of the pin when engaged, exposes it when disengaged. This simple hammer-blocking type of safety is found on few other guns, notably the French M1935 and M1950 military series. Though not all that popular here, it is the simplest, sturdiest, and most reliable of all systems.

The frame is massive and heavy, the barrel held in an integral lug a la Walther PP. The recoil spring surrounds the barrel. Slide removal is a bit unusual. A slotted screwhead protrudes from the right side of the frame, ahead of and above the trigger. Pressing this screw inward and rotating it 90 degrees clockwise turns a slide-stop block from vertical to horizontal. The slide may then be drawn back far enough to be lifted off its guide ribs at the rear and eased forward off the barrel. In its vertical position, the stop block sits between the slide and frame abutments, halting rearward slide travel before it reaches the end of the guide ribs. This is a simple, low cost system

but, if it is disassembled, reassembly can give you fits getting the spring back in place correctly. There is really no need for disassembly so this presents no problem. Technical curiosity prompted me into disassembly.



**An automatic** internal stop of Walther type locks the Sterling slide open when the last round has been fired.

**The Sterling barrel** is pin-fixed to an integral boss. Normally concealed by the slide, here the automatic slide stop is readily visible; a means of manually operating the slide stop would be useful, but even the latest Walther PP Super lacks such construction.

**The Sterling's** ultra-simple lockwork is shown here: a single drawbar connects trigger to hammer and sear, as required, and also functions as a disconnecter.

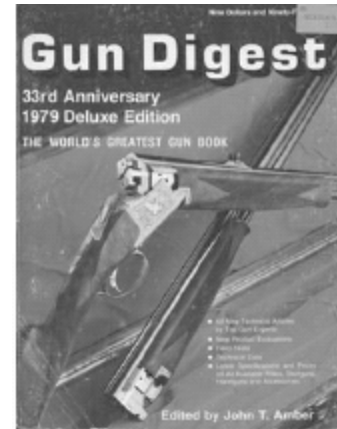
**The Sterling** safety looks much like Walther's, but it does not drop the hammer when rotated. Instead, this is a very simple hammer block, which rotates to prevent the hammer from striking the head of the firing pin, yet does not block sear, hammer, or trigger movement.

An integral narrow rib is cast into the slide and the front sight is part of it. The rear sight is movable for wind-age by means of opposed clamp screws. Grips are checkered, of brown wood-grain plastic, and metal parts are blued (black) throughout.

The Sterling M400 and the Back Up make extensive use of precision castings — less obvious in the Sterling but easily seen in the Back Up. Stainless is more difficult to cast, which may account for the pinholes or blowholes visible in the Back Up slide and frame. Aside from that, both guns show quite good workmanship, though trigger pulls are not great in either. The Back Up's pull goes 6½ pounds but is reasonably clean; the Sterling goes 12 pounds DA and 4½ pounds SA, with quite a bit of roughness. Both guns do work well, which is what counts most.

The Sterling is about \$130, the TDE Back Up about \$160.

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## Double Action Auto Test

Four D.A. auto pistols were fired extensively to check reliability -250 handloads and 50 factory rounds were put through each. There were problems. ■ Kenneth J. Walters

**D**OUBLE ACTION big bore auto pistols have been available since the middle 1930s when Walther introduced the P38. Though such large-magazine-capacity single-action 9mms as the Browning were introduced about the same time, it was not until the early 1970s that a gun combining the D.A. mechanism and a high magazine capacity — the S&W M59 — went into production. Since then other multi-shot pistols, the 9mm Beretta and Browning, plus the H&K 45 D.A. have also appeared. It is these two styles of automatics, large magazine capacity double action 9mm Luger and double action 45 ACP's, that are discussed and functionally tested herein.

For many years it was felt that a good single-action auto, say the Colt Commander or the 45 ACP, was all anyone really needed, and that such guns as the S&W M59 were, because of their more complex mechanisms, overly trouble prone. In the S&W case this criticism was valid until very

recently, as substantiated in at least one article. 1”The S&W Model 59, Boon Or Bust,” by J. Hillock, Guns Illustrated, 9th ed., 1976. (S&W recalled all of these M59s). However, my functional testing shows that the D.A. Beretta, the new or repaired S&W M59, the D.A. Browning and H&K 45s not only rival the functioning quality of the older Colts but, indeed, pass them.

To test these 4 pistols I decided, somewhat arbitrarily, to investigate their ability to handle cast bullet reloads, among others. Why? Well, for the average shooter to become proficient with a handgun requires more than casual practice, extensive shooting which few could afford to do with factory ammunition. Also, since the several 45 ACP guns I’ve owned worked very well with factory ammunition but not at all well with cast bullets, the latter would provide a more severe test. Each gun was tested with 250 rounds of reloads and 50 factory cartridges.

Lyman bullet 356402 (truncated cone) was used for the 9mms and their 452374 (round nose) for the 45s because they’re highly popular, at least of Lyman’s offerings. New 9mm cases were used because those were all I had, but various old lots of GI brass were used in the Browning and H&K in the belief that they would increase the chances for trouble. Of course both 45s were fed equal quantities of cases of all types. A Star press was used to minimize unintentional variations in assembly.



**1978 should** see the introduction of Walther's new PP-Super pistol in 9mm Police, 380 and 32 calibers.

### **Magazine Performance**

The first test observations concerned magazine functioning in the 9mms. These big-capacity magazines held the rounds almost in direct line with the bore. Thus when the slide comes forward and catches the cartridge it is very easy for the truncated-cone bullet to go straight into the chamber. The Walther P38s The Walther importer, Interarms, when told about this said they only recommend the use of round-nose bullets in their guns. and a Colt Commander, however, showed that these single-column magazines seem to hold the bullet just slightly lower. When the slide in these guns grabs the cartridge, the bullet nose usually drops a little, causing the bullet to hit the ramp too low for reliable feeding. Individual guns will vary, of course, so the functioning of any auto pistol should be repeatedly checked before serious use. Still, the large capacity 9mms do seem well suited to using Lyman's excellent bullet.



**Walther's** excellent P38 9mm Parabellum (Luger) double action automatic. Introduced in the 1930s and used throughout WW II, this was the first of its kind.



**Smith & Wesson's M59 9mm Para**, pistol was the first widely produced automatic to incorporate a double action mechanism with a large (14 shot) magazine capacity.



**The Beretta** 16-shot double action 9mm Para, pistol. No malfunctions occurred in firing 250 reloads and 50 factory cartridges.





**The Browning** D. A. 45, initially offered in 9mm Para, and 38 Colt Super, is no longer available in those calibers because of cost increases.

The Beretta and Browning took first honors with none and one malfunction respectively. Since the Browning failed to chamber one of the cast bullet loads, its performance wasn't perfect, but certainly one failure in 300 tries is an impressive record. Both of these guns were felt to have passed these tests with no problems whatsoever.

Since the Beretta and Browning tied for first place, or almost so, what rating does the H&K get, which jammed only once but failed to extract the reloads three times? While I'm not capable of explaining how it came about, a statistician friend determined that in spite of the number of H&K failures, it wasn't exhibiting a lower reliability level.

The S&W M59 malfunctioned 12 times in the first 150 rounds, at which time its hammer broke. Clearly we have no problem, statistically or intuitively, calling this performance a failure.

Since the gun wasn't properly chambering cartridges because of what seemed to be a faulty extractor, which dragged on the case to the point where the slide couldn't go fully forward, This opinion was confirmed by two local gunsmiths. and because the hammer notches were sheared off so that it would fire only in double action mode, the factory was called and new parts requested. A new hammer, drawbar, sear, extractor, extractor pin and extractor spring were supplied with out charge. These parts clearly

eliminated the hammer problem, which I'm sure was an unlikely fluke caused by a bad part, Several local gunsmiths and shooters could remember no other difficulty of this kind occurring. but the failure to chamber remained. The gun was then returned to the factory.

### **Smith & Wesson Recall**

While the gun was being repaired S&W announced “new product improvements to present owners of S&W Model 59 autoloaders.” This total, no-cost recall was for alterations of the extractor, magazine follower, and slide-stop lever. Tested after its return showed it to be performing very well; it failed to chamber only twice, once while firing 250 reloads, and once with the 50 factory cartridges. Another M59, run as a control and which did not have the factory rework, also failed twice — once to eject and once to feed, both with reloads. It appears that those M59 troubles have now been overcome.

As an aside, the original S&W magazines supplied with my M59 hold 16 rounds easily. The one sent to the factory and returned with the pistol now holds only 14 cartridges, but both work equally well.

As far as I and some local gun store owners can determine, there is absolutely no way — other than perhaps by magazine capacity — to tell whether a used M59 has been back to the factory for repairs. It seems clearly a case of “buyer beware.” The same people told me, incidentally, that S&W is lowering production on the M59 and other guns because of falling sales. Certainly the gunshops in this area face reduced demand for the pistol.



**The Heckler & Koch pistol**, patterned after their similar 9mm gun, was the first mass-produced D. A. 45 ACP automatic.



**The proposed H&K 18-shot capacity D.A.-only VP70Z.** Import difficulties make sales of this auto pistol in the U.S. uncertain.



**Walther's** forthcoming models will consist of the P38 IV, the P5 and the P38 K (shown here), all having a new D. A. mechanism.

So, if we now consider these 4 guns equally serviceable, though differing in minor mechanical detail, the potential buyer could select any of them with out worry.

### **Other Makes/Models**

These 4 pistols, of course, don't represent all possible types offered, but simply all that were available to me at the time. LES, for instance, has been on the verge for some years of producing the Steyr-designed 9mm, and LES had a booth at the NRA meeting, a sample pistol on view. An LES spokesman, during a recent phone talk (mid-April, 1978) said that their gas pistol was being shipped to dealers, but could give no name of any Chicago area outlet which had been sent one, or more, nor was he willing to send us a sample gun for appraisal and testing. J.T.A

Too, it is well known that Colt has developed big bore prototypes. A source in the company told me that the fire-arms division has approved the design for full production but, alas, no decision has yet been made.

Also, though S&W categorically denies it, friends working there have seen prototypes of an 11-shot D.A. 45 which, they were told, would go into production in early '79. S&W prototypes in this caliber go back many years, so there is room for doubt about series production, but Colt sources confirm that S&W had recently hired several engineers who once worked on Colt's double action.

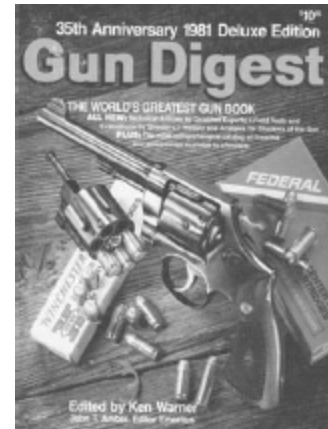
On a somewhat more promising note, the Thomas 45 D.A. (only) automatic is being produced, though in limited numbers. Dean Grennell has reported "The i-Dotting Thomas 45," Dean Grennell in Gun World, January, 1978. that his test pistol had chambering problems, but Walter Rickell said he had no such difficulties. "The Thomas 45," Walter Rickell in The American Handgunner, January/February, 1977.

Finally, according to Hubert Zink, executive V.P. H&K, that firm will decide in '78 whether to produce their VP70Z. There are, I'm told, problems in getting it approved for importation, so its future is unclear.

Though many-shot D.A. pistols in 9mm Parabellum caliber were slow in arriving, and D.A. 45s have only recently appeared, I think the years ahead will see rapid growth in both of these areas.

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1981



## Walther's P5 Pistol

The new generation in police handguns takes new tacks. Or are they? z  
James P. Cowgill

**I**MAGINE an autoloading service pistol with no safety lever.  
"No way," one might say. "It wouldn't be safe to carry loaded."  
But wait. Is your typical service revolver safe to carry loaded?  
"Of course," one thinks. "Modern double-action revolvers can be safely carried, hammer down, with all chambers loaded."

Then where is the safety lever on your revolver?

"There is none. A safety lever on a revolver is unnecessary because the firing pin cannot contact a primer unless the trigger is pulled all the way to the rear."

Exactly. But the West German firm of Carl Walther has produced a new autoloading service sidearm, the P 5, with no safety lever. This pistol, however, is safe to carry with hammer down and a round in the chamber.

The P 5 was developed in response to a German government competition to standardize police handguns and ammunition. Federal police and the military use the 9mm Parabellum Walther P 1, the lightweight-alloy framed

version of the famous P 38 double-action auto-loader. State and local departments use a variety of pistol types with .32 auto-loaders probably the most popular. The Polezei are very big on submachineguns, universally issued in 9mm caliber. The different calibers in use cause some logistics problems in ammo interchangeability, procurement, and stockage.

A committee drafted specifications for their concept of the ideal European law enforcement handgun, including these criteria:

Caliber: 9×19 mm Parabellum (Luger)

Magazine capacity: 8 rounds minimum

Muzzle energy: 369 ft.-lb. minimum

Over-all length: 7 in. maximum

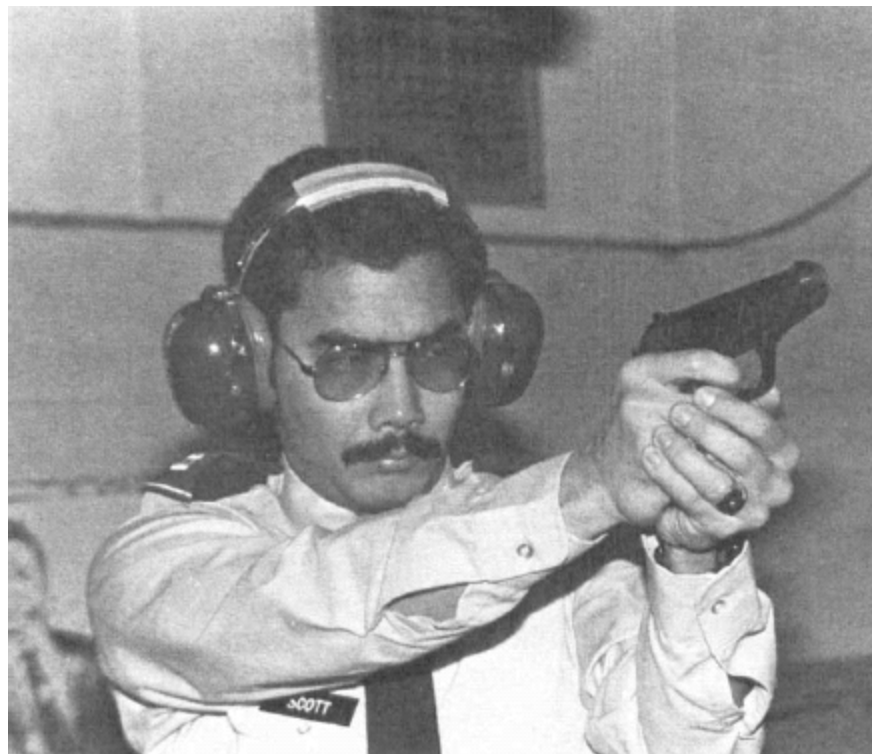
Over-all height: 5 1/8 in. maximum

Width: 1 15/16 in. maximum

Weight: 2 lb., 3 oz. maximum

The specifications also stated that the pistol would be safe to carry with a round in the chamber, ready to fire instantly without the necessity of operating cocking or safety levers. In testing, the pistols were required to fire 10,000 service rounds without major failure.

The surviving three of four candidates were:



**Sam Scott** didn't find the leftward pitch of the empty brass both ering him as he worked with Walther's newest cop gun in 9mm

- Heckler & Koch's Model PSP (P 7) with its unique gas-delayed blowback action.
- Sig-Sauer's Model P 225, an abbreviated P 220 (BDA).
- Walther's Model P 5, which improves upon the P 38's (P 1's) safety features.

The P 5 bears a strong family resemblance to the P 38. Both have double-action triggers and steel slides. The P 5 shares the P 1's lightweight alloy in its frame. Unlike its predecessors, however, the P 5 has no safety lever.

Obviously, neither its designers nor the German committee felt it needed one. The P 5 has four independent working safety features:

First, the firing pin is, as translated from the German operating manual, "arrested from longitudinal axis motion" at all times, except when the trigger is pulled fully rearward. That is, the firing pin is blocked in a safety rest position until the trigger is pulled. Thus the weapon will not fire if dropped muzzle-down on a hard surface.



**There are no** operating controls on the right side of the P5 and no ejection port either. German police and the Dutch government like the gun.





**From this angle**, the P-38 ancestry can be seen, although the inside isn't all ancient history. The "safety" is actually an operating lever; see test.



**Gun closes** when operating lever is depressed, chambering round and leaving hammer cocked. To uncock, depress the operating lever a second time.



**Nothing mysterious** here. P5 breaks easily into the usual slide, frame, barrel and magazine groups. The barrel is a little more complicated, true.

Second, there is a cavity cut in the striking surface of the hammer. When the trigger is forward, the firing pin rotates downward so that the base of the pin is aligned with the cavity. Even if the hammer should fall, it would not strike the firing pin.

Third, the hammer, in its uncocked resting position, is held by a hammer latch at a stand-off distance from the firing pin, even if the pin were rotated into the path of the hammer striking surface.

Fourth, a disconnecter mechanism prevents firing unless the slide is fully closed in battery.

A unique feature of the P 5 is the operating lever on the left side of the frame. This lever has two functions: to close the open slide, and to uncock the weapon.

To load the pistol, the slide is pulled to the rear and the slide stop engaged either manually or automatically by the follower of an empty magazine. A loaded straight box magazine (8-round capacity) is inserted. The operating lever is pushed downward with the thumb of the shooting hand (righthanders), which closes the slide, chambering a round. The weapon is now cocked and ready to fire. Releasing the operating lever and depressing it once more safely lowers the hammer. The pistol is now safe to carry but ready to fire by either pulling the trigger for double-action, or by thumb-cocking the hammer for a single-action first shot.

The recoil of the slide cocks the hammer for subsequent shots, but the operating lever can be used to lower the hammer at any time.

With proper familiarity and training, the P 5 can be as safe to carry as a revolver — and just as ready to fire. The firing pin cannot strike the primer unless the trigger is pulled all the way. But, since the weapon is double-action, the firing pin will be struck by the hammer every time the trigger is pulled.

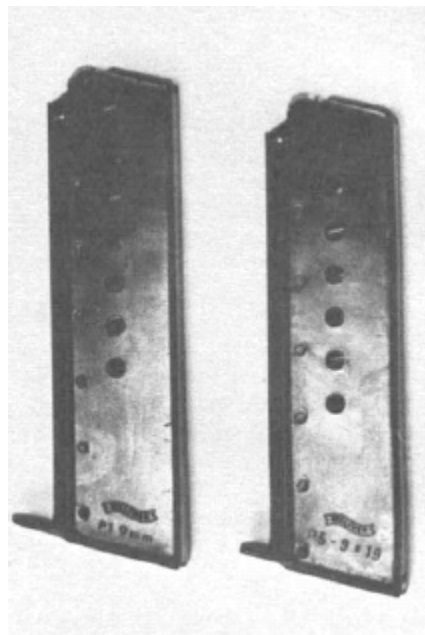
The P 5 has a typical German gripheel magazine catch. Takedown into four major groups (magazine, slide, frame, barrel) is done simply by rotating a “barrel-stop lever” located on the left front of the frame.

The P 38-type locked breech is of proven reliability and accuracy potential. Locking lugs connect the barrel to the slide in battery. Upon firing, the slide and barrel recoil together for about an eighth of an inch, when a shaft on the bottom of the locking lug assembly hits the frame and cams the locking lugs away from the slide, freeing it to recoil fully

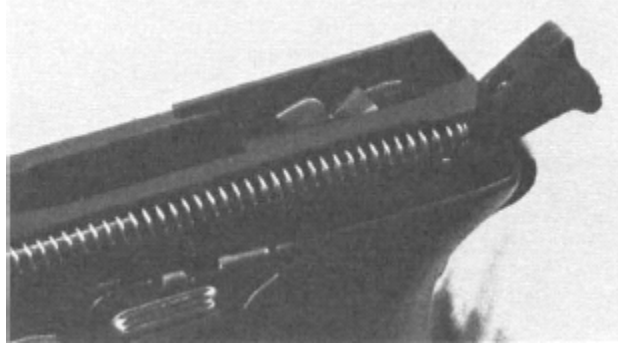
rearward. Spent brass is extracted and ejected. Dual slide springs return the slide which picks up a round from the magazine and chambers it.



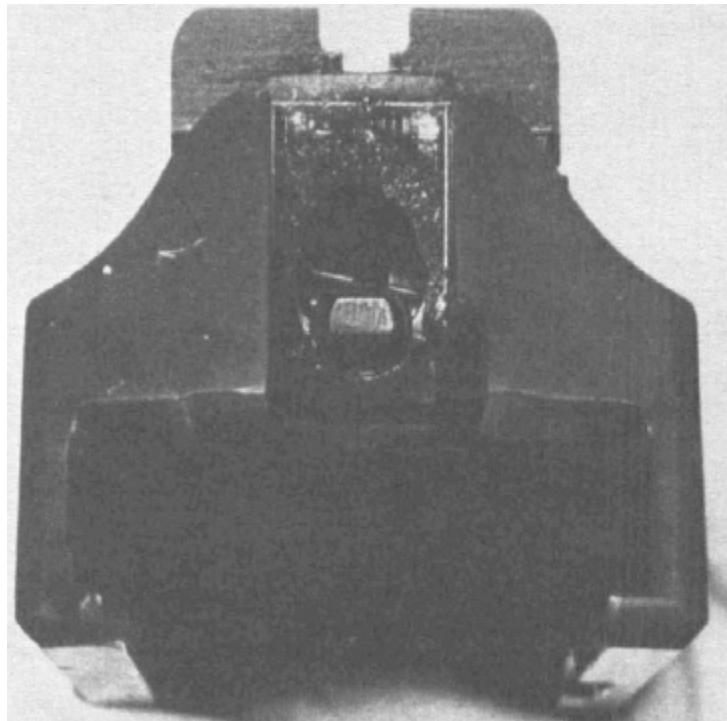
**How big** is a service pistol? Here are three: the P1 (P-38), the Colt M1911 and the new P5, which is much the smallest.

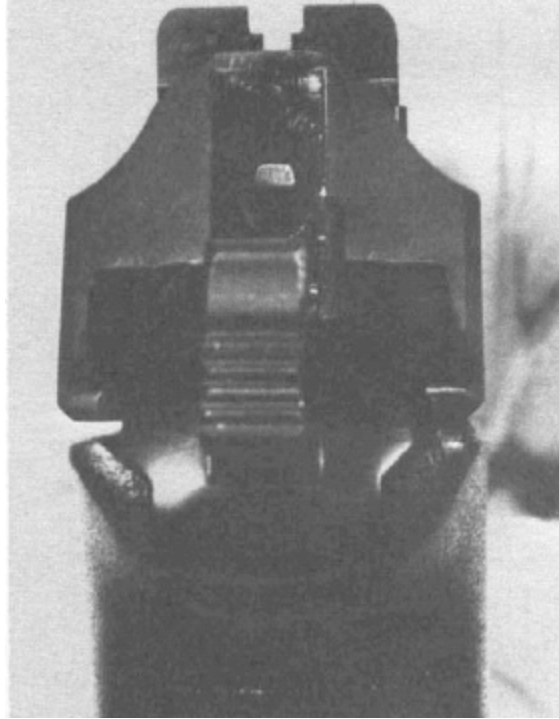


**Magazines** for the P-1 (P'-38) and P5 look alike, but they are not. Each holds eight rounds, though.



(LEFT) **The bright-metal** projection in the center of the frame is the disengagement lever, shown in the raised position it reaches only when the trigger is Fully to the rear. This lever lifts the firing pin into Nring position.





(BELOW) **The base of the firing pin** rests in the safety position. Only pulling the trigger will lift it into line so the striking surface of the hammer can hit it. This is one of four basic safety mechanisms in the new Walther P5.

**Walther Model P 5**  
**Technical Data**  
System: Locked-breech,  
recoil-operated, self-loading  
Breech: Locking toggle,  
slide-to-barrel  
Caliber: 9mm  
Parabellum (Luger)  
Dimensions: 7" long, 5" high,  
1¼" wide. 3½" barrel;  
5¼" sight radius.  
Frame: Lightweight alloy  
Weight: 28 oz. unloaded  
Magazine capacity: 8 rounds  
Manufacturer: Carl Walther,  
Ulm (Do), West Germany  
Importer: Interarms, Inc.,  
10 Prince St., Alexandria,  
VA 22313



**Author found the pull** smooth though heavy; recoil with Federal 125-gr. loads mild; accuracy good. He must like the gun — he bought one.

Double-action trigger pull is a lot heavier than that of a PPC revolver, but the single-action trigger feels much better than that of other double-action autoloaders. After taking up the slack characteristic in this type of action, there was no mush in the test auto's single-action trigger. Very economical movement fired off each shot.

When the slide is in battery, two things happen at the trigger's rearmost travel — the trigger bar forces a disengagement lever upwards moving the firing pin off its safety rest and into the path of the hammer; and the hammer latch is pulled from the rear notch on the hammer, allowing it to fall and strike the firing pin.

A recess is cut in the slide for the disconnecter. The recess is aligned with the disconnecter only when the slide is fully closed. If the slide is partially open, the disconnecter nose on the trigger bar contacts the slide, forcing the bar downward and out of position to release the hammer latch, preventing firing from an open breech.

When the pistol is uncocked, the hammer latch holds the hammer away from the slide so that it cannot contact the firing pin base even if the firing pin were moved off its blocked position in the slide.

Thus there are multiple, independent, and redundant safety features incorporated into the P 5's design. However, even the safest weapon can be dangerous through improper operation. Training remains the ultimate key to safety for all firearms.

Test firings, using factory-loaded Federal 123-grain full-metal-case bullets and handloads with Sierra 90- and 115-grain jacketed-hollow-point projectiles, had no stoppages at a local range (300 rounds fired). NRA target ten-ring accuracy at 25 yards from bench rest was no problem, surely adequate for a service pistol.

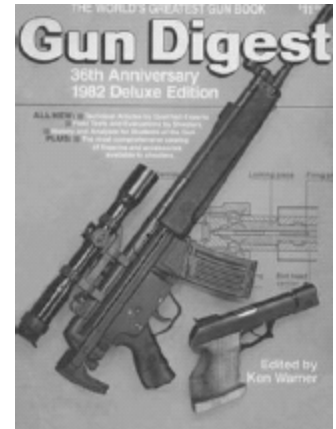
The Patridge sights are highlighted with a white dot on the front post and a white square immediately under the rear notch. This arrangement helps in low-light and dark-background shooting situations (the white surfaces do not glow in the dark). The rear sight is adjustable in windage.

The P 5 has been adopted as the duty sidearm for several German police jurisdictions. The Netherlands government, after extensive competitive tests, has ordered 35,000 P 5's. The U.S. importer is Interarms, 10 Prince Street, Alexandria, VA 22313.

The P 5 is a safe, reliable, and accurate service autoloading pistol. Now the mystery: The ejection port is on the left side of the slide, and ejected brass caroms high over the shooter's left shoulder. Why is the port on the left, when conventional industry practice puts it on the right side? Is this feature designed for left-handers? Or does the port position make inspection of the chamber easier for right-handers? Did a blueprint get reversed in reproduction at the factory? If you know the answer, please tell me!

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1982



## The Bren Ten: Intended To Be Better

■ Jeff Cooper

**H**ANDGUNS evolve slowly. Before there were automobiles, radios, or airplanes men carried sidearms that served their purpose just about as well as anything we have today, and while the pistol on my belt is indeed better than that used by Alvin York it is very similar to his, differing only in refinements that make it somewhat easier to shoot but hardly more efficient.

This is remarkable, but may be explained by analysis of the problem a sidearm is meant to solve. As a reactive instrument for decisive short-range action without advance notice, the pistol has had no real need to evolve, since its purpose has not changed and our technology has not come up with anything better able to accomplish that purpose.

Thus it is that significant improvements have been few and widely spaced for more than a century. The self-contained metallic cartridge was probably the single most important forward step, coming into common use



just about 100 years ago. When this was combined with smokeless powder and the development of reliable self-loading mechanisms, we arrived at the modern “automatic pistol,” just in time for World War I. Since then we have seen only the addition of the double-action feature in the self-loader; an advance which, while very exciting at the time of its announcement back in the ‘30s, proved to be essentially illusory — an answer in search of a question. Some very powerful new cartridges have appeared which make the handgun suitable — in highly skilled hands — for taking game up to about 400 pounds in weight, and quite a bit more in special circumstances. This use of the pistol, however, is a bit esoteric. It is very interesting to those who specialize in it, but not really relevant to the primary mission of the weapon type.



**This may be one of the guns** of the future, by Dornaus & Dixon, out of Cooper, Petter, SIG and Browning, and designed for a cartridge of the future in 10mm.

Is there, then, no way to improve upon what we have had for three generations? With the U.S. government now going backward from one antique but highly effective pistol cartridge to another which is even more antique and about half as effective, it would seem that further progress is held to be impossible. But we know that should not be so. Progress is always possible, given the will and the wit.

In the magnificent Browning/Colt 45 auto pistol of 1911 we have a superb balance of stopping power and controllability, augmented by simplicity, durability, reliability, and compactness. Can we do better than that? Yes, we can. Until some entirely different principle is discovered, we cannot build a handgun that departs in any single radical characteristic from what we now have, but we can combine all the best features of the weapons we now have into one design, under the guidance of the people who know the most about practical shooting, and produce it by the most modern methods so that it is ready to go “out of the box.”

This has been done. We shall have the Bren Ten if present plans mature. Here we have a very powerful, medium-sized, easily controlled, high capacity, selective action pistol utilizing thoroughly proven mechanical systems and enhanced by a number of unique features found in no other piece. Its heart is a new cartridge that offers the stopping power of the illustrious 45 in a more compact package together with increased kinetic energy, range, and (if desired) penetration. Its durability, reliability and accuracy have yet to be put to the test of time, but since the relevant materials and systems have been individually time-tested in antecedent weapons we can safely predict their success in combination.

Any smallarm must be considered as a composition of two elements: weapon and cartridge. The Bren Ten is unusual in that it is the only pistol taking the new 10mm auto pistol cartridge, and that it will take no other. You can't have the one without the other. If it is indeed a great leap forward, it is because the design doesn't drag any left overs along.

The action is of the Browning tilt-lock type and derives from Browning through Petter to SIG 210 to Cz 75. The latter piece is admittedly the inspiration for the new gun, as shown in the name. The Czech arsenal at Brno is the parent of both the renowned English Bren gun (Brno plus Enfield came out “Bren”) and the Cz 75 9mm pistol. The 75 is the best of the 9's and it seemed to me that if it could be had in 45 caliber it might eventually supersede the 1911. That idea was expanded to include the experimental 10mm cartridge originally pioneered by Whit Collins and Irving Stone, and wound up as a prototype built by Tom Dornaus, late of the Pachmayr organization. This prototype can fire either the 45 or the 10 since a barrel and slide for either cartridge has been made, plus one 45 magazine. This was done to permit us to shoot the weapon, since the 10mm ammunition is not in production and must be made by hand at this time.



**Jeff Cooper** draws nicknames (Chairman Jeff, Dr. Death) and respect alike in his role and posture as a handgunner for all seasons: His mark is on the Bren Ten.

The original 10mm cartridge was made by cutting off the 30 Remington rifle case and fitting it with the 180-grain bullet of the 38–40 (which is of 40 caliber). This combination gave astonishing performance — well up toward 1200 f/s with fairly modest charges of Unique — in a test barrel. We felt that more mass was in order and settled on a 200-grain JTC bullet which, when loaded to an overall length of 1.3”, still leaves enough case volume to break 1100 f/s without excessive pressure or recoil. A 40-caliber, 200-grain, flatpoint starting at 1100 fps gives us a pretty balance of mass, velocity, impact area, and Hatcher “k.” It also shows more energy at 100 yards than the 45 does at the muzzle.

Power is easy — look at the big-bore magnums. How about recoil? Well, if we take the momentum of the two loads we find that the 10 is to the 45 as 22 is to 19.5. It kicks a little more, but not quite as much as a really hot 45, such as the old Western Super X load. When we fired the 10 out of the

prototype, we found that the advanced butt design borrowed from the Cz 75 made up for the difference, and that the Bren, despite its increased power, was every bit as “soft” as the Colt, easily managed with thumb and forefinger alone by a trained person.

Unlike almost all other handguns, the Bren Ten was designed by shooters for shooters. It incorporates all sorts of nifty features that only serious shooters would think of. It is, for example, dehorned, with no sharp corners or edges rearward to abrade hands or clothing. Its fully adjustable rear sight is revetted in a solid steel cup to protect it from hard knocks. Its front sight, though stronger than those on most autos, is instantly replaceable by field stripping. Its recoil-spring guide doubles as a combination tool. Its magazine release of the Browning type can be set two ways by half-turning a detent screw. The magazine may either fly free as with a Colt or be held half-ejected for those who fear magazine loss or damage. Magazine capacity is 11 rounds.

The trigger-cocking (double-action) mechanism is another system borrowed from the Cz 75, and is the smoothest and lightest of its type. It is offered only to please the unenlightened, however, for the selective action allows the pistol to be properly carried in Condition One on the belt. The thumb safety is positioned forward under the swell of the thumb for comfortable operation. It is reversible, and may be quickly plugged-in on the right side for a left hander. This feature is unique with the Bren Ten, and far better than ambidextrous safeties seen on modified Colts — stronger, more comfortable, and not to be rubbed off inadvertently in the holster. It is easily operable with the trigger finger of the weak hand in case of strong-hand disability.

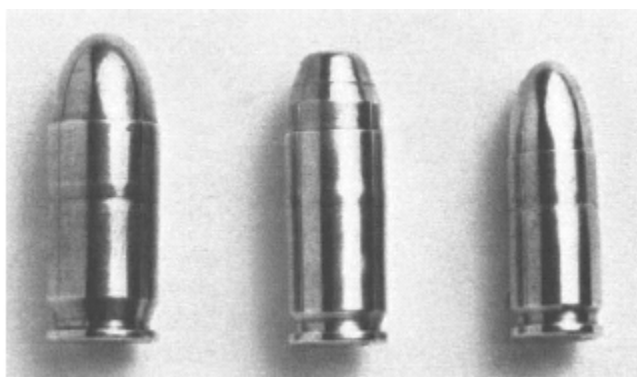
The pistol is very similar to the 1911 in size, and weighs two ounces less when unloaded. It is very similar in “feel” to the Cz 75. Barrel, frame, and springs are of stainless steel, but not the slide. Stocks, the only parts that the customer may want to modify to his individual taste, are of maple on the prototype but will be black plastic on the production guns. The Patridge sights are illuminated by the three-dot system as on the H-K P-7, but can easily be filled in by shooters who stick to black-on-black. Any sort of trick front sight can be plugged in in seconds, without tools.

It would be economically unsound to produce an instrument as advanced as the Bren Ten by old-fashioned methods. I was told in Germany that the Cz 75 was marketable at a competitive price only because the commissars

can set any price they fancy, and that the piece would have to go for at least \$1200 if it were made by conventional methods and free labor. Such is not the intention with the Bren Ten. Tom Dornaus has set up his brain-child to be run off on programmed automatic cutters which dispense with operators and need only directors and trouble-shooters. The machines have been checked out and they work. By this means the pistol can be produced for something like \$450 retail, which is a bargain considering that it comes across the counter ready to go with no sights to install, no trigger job, no dehorning.



**Much of its** antecedents can be seen in the stripped Bren Ten: CZ75 shape; Browning lock; SIG slide-inside-frame. It's meant to be the complete defensive arm, out of the box.



**The 10mm** cartridge may be thought of as a rimless 38–40, or just something sort of halfway from 9mm to 45, but not like either one.

Ammunition plans have been made, and the manufacturer stands ready to throw the production line switch on the day the cutters are ordered.

The Bren Ten is not just another new pistol design. We have plenty of those. We do not need another big, cumbersome, expensive 9. Those who can live with that power level are best advised to go to the Heckler & Koch P-7 (PSP), which is the right size and weight for a second-line cartridge. Neither do we need a giant pistol suitable for hunting moose and elk. But we armed citizens do need something with which to replace the grand old 1911 45, not because it won't do but rather because it is due for phase-out. Colt Industries has long indicated that it is not happy in the gun business and would get out if it could do so comfortably. With the Pentagon about to replace a really good pistol with a mediocre one at huge cost to the taxpayers we cannot look to the new service pistol as an adequate replacement for our own use. The Bren Ten, if it works, is the obvious answer.

Will it work? The prototype sure does. Not being a machinist, my reservation is that I do not know whether or not the programmed cutters can mass-produce triggers like the one in the prototype. Tom assures me that they can, and he ought to know, but until I have personally tested a respectable number of production guns I cannot swear to this. I do know that production triggers can be excellent, so where there is a will there is apparently a way.

As I write this the financing of the project is still not ready, though there have been a lot of nibbles and a couple of hard strikes. Quite a lot of money is involved, and if it is to be raised by public subscription the situation will be complicated. At least one foreign government has bid to back the whole show at one stroke, but with governments there are always strings attached. As long as anyone listens to me, for instance, there will not be a "Bren Nine."

In the absence of some evidence to the contrary I am going to go out on a limb and assert that the Bren Ten is indeed the better mousetrap.

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## Rating Handgun Power

This Power Index rating puts all handgun cartridges in their proper places. ■  
Edward A. Matunas

**F**OR A LONG TIME the best possible way to estimate the potential effectiveness of handgun ammunition has been to compare the kinetic energy developed by a given round of ammunition with the kinetic energy of other rounds. As you may know, kinetic energy figures are expressed in foot pounds. This method is a reasonable approach to the problem as it is very objective and it is supported by the laws of physics. It is, however, not without its shortcomings.

For example, the kinetic energy system shows us that a 38 Special using a 158-grain round nose bullet, travelling at 755 ft./s, has 200 foot pounds of energy. It also tells us that a 158-grain semi-wadcutter's bullet travelling at the same speed has the same energy. And while it is true that both bullets possess the identical energy, the semi-wadcutter is a superior performer. This performance superiority can be proven by shooting into gelatin blocks or by examining records based on actual shootings involving police officers.

The vagaries of the kinetic energy system for rating handgun ammunition are numerous. No knowledgeable shooter would expect a full metal jacket 9mm bullet to perform as well as an expanding bullet of the same caliber and weight traveling at the same velocity. The expanding bullet is vastly superior. And despite the similarities in energy, a factory 9mm Luger with a 124-grain full-metal case bullet at 339 foot pounds of energy will not perform as well as a factory 45 Auto with a 230-grain full metal case bullet at 335 pounds of energy.

A number of systems have been devised over the years to express a handgun bullet's ability to get the job done. One of the most publicized expressed the bullet's performance by listing its momentum. The various methods tried have failed because they have ignored or played down the bullet's kinetic energy.

In some circles, extensive testing has been conducted in various media to get the bullet to perform as it would in tissue. These tests, usually conducted by or for a well financed police department, have resulted in some very elaborate charts which graphically depict bullet performance. These charts have been a giant step forward as they indeed show the superiority of expanding bullets over otherwise identical non-expanding bullets, but the drawbacks are very real. First, they are not readily available to most shooters; Second, they are useless when a new round is being considered; Third, they are subject to errors created when test performance is nontypical, caused by a lot of ammunition with velocity above or below nominal velocity or by a firearm that produced nontypical results.

The shooter therefore has been left to choose ammunition using the objective value of the kinetic energy of the round combined with his intuitive and subjective reckoning on the performance of a particular bullet style. As oft en as not, this has led to a great many misconceptions. For instance, most handgunners feel the 45 Auto will outperform any 38 Special round. This simply is not so. A number of 38 Special high speed rounds which use expanding bullets are far superior to the standard 230-grain full-metal case 45 Auto bullets.

Of course, a shooter can resort to testing each and every interesting round in gelatin blocks. Or if he has great influence he could perhaps examine 5-6,000 case histories from a major police department's records of shootings. Neither approach is very practical.



I have devised a method that fully takes into account the bullet's kinetic energy, its shape, its ability to expand and its basic diameter. I have been working with the basic idea for almost 20 years and I have reworked the idea many more times than I care to admit. Each time I discovered a discrepancy it was back to the drawing board. The system now, in my opinion, is what it was intended to be — a reliable indicator of handgun bullet performance, regardless of the bullet style, caliber, velocity or weight being considered. I call this new system Power Index Rating or PIR. (Note: I call it the Matunas Number. Editor.)

Any system which purports to express the ability to reflect an accurate representation of a bullet's capability to get the job done must somehow incorporate the bullet's kinetic energy. The formula for kinetic energy is, as you may know:

$$\text{K.E.} = \frac{V^2 Bg}{450240}$$

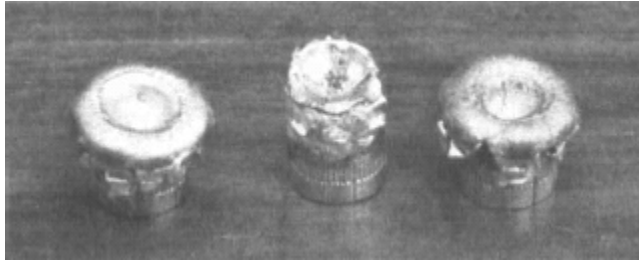
In this formula: V = the velocity in feet per second; and Bg = the weight of the bullet in grains.



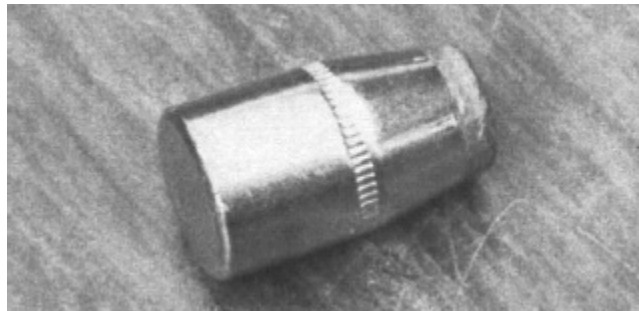
**Here are a Speer** 158-gr. round nose 38 Special bullet, unfired, and a 158-gr. Speer semi-wadcutter, fired and unfired. The PIR System clearly shows the superiority of the semi-wadcutter over the round nose. Both are non-expanding, carry different energy transfer values.



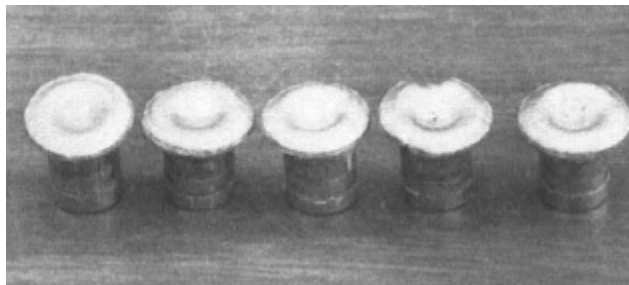
**Classic expansion** was obtained in a 3-inch 38 Special with these Sierra 125-gr. hollow points. These newest Sierra bullets feature jacket cuts at the nose. It is these cuts which allow such perfect expansion.



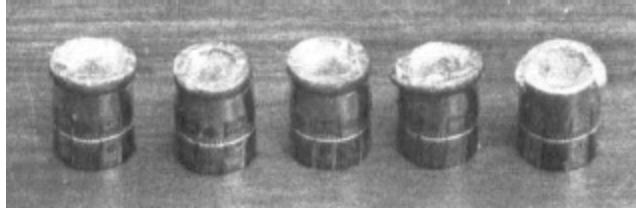
**Shown are** Winchester 85-gr. Silvertips fired from a 380 Auto. The bullets on either side were fired into thoroughly soaked phone book pages. The bullet in the middle was fired into identical material which had not yet become completely soaked. The importance of using 100% saturated phone books is clear.



**This is the Sierra** 125-gr. jacketed hollow point unfired. There are notches or cuts in the jacket at the nose end, and it is these notches that make these new Sierra bullets predictably good expanders.



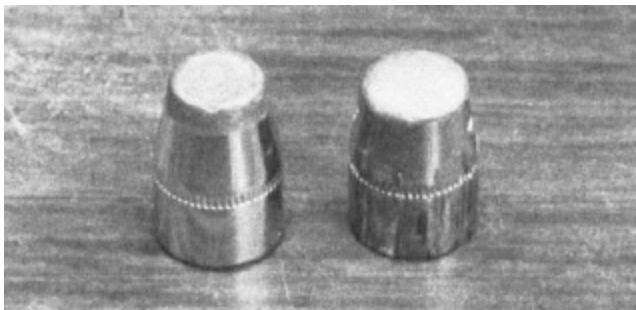
**These are 158-gr.** lead hollow point bullets. They were fired from a 2-inch revolver. These were loaded by Winchester as +P ammunition, and expansion was obviously perfect. Such bullet performance gains high ratings in the PIR System.



**These are** Speer 110-gr. 38-caliber hollow points fired from a 2-inch 38 Special revolver, while the nose lead smeared to some extent these bullets do not qualify as expanding bullets when fired from this length barrel at the tested velocity.



**Even the 140-gr.** Sierra hollow points expanded when fired from a 2-inch S&W Chiefs Special. While expansion of this heavy bullet is not tremendous in such a short barrel, it is sufficient to give the bullet a maximum energy transfer value in the PIR System.



**This shows** an unfired 125-gr. Sierra soft point 38/357 bullet alongside of a fired bullet of the same make and style. No expansion took place when this bullet was fired in a 4-inch revolver, which is why each style and type of bullet needs to be tested for expansion.



**A 9-inch pile of soaked** phone books stops all expanding bullets up to 115-gr. 9mm Luger rounds. For heavier calibers substantially greater thickness is required to stop the bullet in the books.



**Bullet performance** can, of course, be tested in clay blocks. However, such testing is very time-consuming and very costly. The author feels wet phone books are quicker, cheaper, and just as reliable.

By measurement, the weight of the bullet and its actual velocity can be determined. It is then a very simple matter to square the velocity, multiply the resulting figure by the bullet weight and divide all this by the constant 450240. The basis of the above formula has been verified and explained in

a great number of places including my book, American Ammunition and Ballistics. Kinetic energy remains an important part of the PIR formula.

Any system to rate bullet performance must also address itself to the bullet's ability to expand because, as stated, an expanding bullet is far more effective than an identical non-expanding bullet at an identical velocity. And flat nosed, non-expanding bullets are better performers than other shapes of non-expanding bullets.

Since expansion is a vital part of bullet performance, I have tested a great number of bullets. As you may have expected, a number of bullets purported to be expanding turned out to be non-expanding. As an example, note the accompanying photo of three factory bullets fired from a 380 Auto PPK/S Walther. One is a Remington 88-grain Hollow Point, one is a Federal 90-grain Hollow Point, and one is a Winchester 85-grain Silvertip Hollow Point. Neither the Remington nor the Federal bullet expanded, while the Winchester bullet expanded in a classic style. Obviously in this case, with three almost identical bullets at nearly identical velocities, the expanding bullet is a far superior performer. All of my bullet tests were 15-round tests, at minimum.

You can easily duplicate my expansion tests. It is not necessary to prepare elaborate blocks of ordnance gelatin. All you need is a good supply of thoroughly soaked telephone books. It will speed up the soaking process if you remove the covers and backing which hold the books together. Before testing flip through the pages to make certain all the pages are completely wet.

**WARNING:** Bullets will penetrate through a much greater thickness of dry pages than through wet pages. And bullet expansion in dry pages will be extremely poor. Be certain that the book pages are completely soaked.

A 9 to 10-inch stack of wet phone books will stop expanding bullets up to and including the 9mm Luger. For heavier calibers or for non-expanding bullets you will have to increase this thickness notably. Be certain your bullets stop inside the wet paper. Bullets which completely penetrate can be severely expanded against your backstop.

For my testing I dug a hole in the ground about 24 inches deep. I poured a concrete floor some 5 inches thick in the bottom of the hole. The concrete aided in holding water and insured that the book pages would lie flat. At the beginning of my tests I failed to use enough paper and two different bullets hit the concrete and flattened out to about the thickness of a quarter.

Expansion looked tremendous. Both bullets however, completely failed to expand when they hit an adequate thickness of wet pages. A bullet in tissue will perform very differently than a bullet hitting a very hard object.

The wet phone books produce a very visual impression of a bullet's performance. The hole from a high velocity expanding bullet will be considerably larger than the bullet's actual expanded diameter. The holes left by non-expanding bullets will be quite small. Good expanding bullets will actually cause an eruption of tiny wet particles out of the bullet hole. The width and depth of the bullet hole will be a good indicator of bullet performance. However, for our purposes you simply need to determine if a bullet will reliably expand shot after shot. Therefore I suggest that you test no less than 5 and preferably as many as 15 bullets.

Establishing expansion is essential, as my formula for determining the bullet's Power Index Rating applies a factor for expanding bullets and a different factor for non-expanding, flat nosed bullets and still a different factor for non-expanding, non-flat nosed bullets. My formula also allows for the increased performance of larger diameter bullets. Be certain that you test for expansion at the range (velocity level) for which you wish to determine performance. Some bullets expand well at 7 yards or from a given barrel length, but fail to expand at longer ranges or from shorter barrels.

The formula for the Power Index Rating of handgun ammunition started out as:

$$PIR = \frac{V^2 ETvBg}{(450240 \times 269)} \times Dv$$

In this formula: V = Velocity in feet per second; ETv = an Energy Transfer value; Bg = the Weight of the Bullet in Grains; Dv = A Bullet Diameter value.

$$\left( \frac{V^2 Bg}{450240} \right)$$

The PIR formula retains all the factors involved in obtaining kinetic energy figures, plus it allows for bullet shape and expansion or lack thereof (ETv) and also for basic caliber size (Dv). Additionally, it allows a factor (269) that will bring a specific level of cartridge performance to a value of 100. Most handgun ammunition performance is geared to defensive use, so

I have used a constant that will result in a value of 100 for any cartridge/bullet combination that would prove to be highly effective as a man-stopper at short ranges and neither lighter nor heavier than needed.

This value was assessed equal to a 38-caliber bullet of 158 grains, capable of expansion at a muzzle velocity of 875 feet per second. This level of performance is generally accepted by a large number of progressives who have adopted the 38 Special +P 158-grain lead hollow-point load. It is important to realize that if you disagree with this performance level the formula still remains completely accurate. You can simply select a value higher than 100 to represent your minimum acceptable level of cartridge performance.

In the interest of making the formula easier to use, the original values for ETv (Energy Transfer Value) were modified simply by moving the decimal position. This allowed for the constant factor of  $(450240 \times 269)$  to be reduced to 12111, thus giving a more manageable formula of:

$$PIR = \frac{V^2 ETv Bg}{12111} \times Dv$$

As in the earlier formula: V = Velocity in feet per second; ETv = Energy Transfer Value; Bg = Bullet Weight in Grains; Dv = Bullet Diameter Value.

The ETv values were arrived at only after years of research and trial and error applications. These values now used have been proven correct in every conceivable application. They are as follows: :

<u>Bullet Type</u>	<u>ETv Value</u>
Bullets that actually expand	.0100
Non-expanding flat-nose bullets	.0085
Other non-expanding bullets	.0075

A bullet qualifies as a non-expanding flat-nosed bullet only if it has a total flat area equal to 60% or more of its diameter. All wadcutter and semiwadcutter bullets that I have examined qualify for the flat nosed ETv. Almost all other non-expanding bullets have an ETv of .0075. To any “expanding” bullet that does not actually expand should be applied one of the non-expanding ETv’s. For instance, the 88-grain Remington Hollow Point 380 Auto bullet that failed to expand in our tests received an ETv of .0075. The Federal 90-grain bullet for the 380 Auto also failed to expand. But it had a relatively flat profile and therefore received an ETv of .0085.

It is vital to the application of the formula that you determine whether or not a bullet expands in your use. You can do so from the included data chart or by actual firing into wet phone books. If the barrel length of your gun is shorter than our test firearm then, due to reduced velocity, a bullet that expanded in our test gun may fail to expand in your shorter barrel. You must apply the correct ETv value if the formula is to express the real potential of any particular gun/cartridge combination. For a shorter or longer barrel, an appropriate velocity correction must be made. For my tests and charts I used fourinch barrels for most of the data collection. In some calibers, I have included data for other lengths.

The Dv values for bullet diameters have been proven to be correct in application as follows:

Actual Bullet Diameter	DV Value
.200" to .249"	0.80
.250" to .299"	0.85
.300" to .349"	0.90
.350" to .399"	1.00
.400" to .449"	1.10
.450" to .499"	1.15

Obviously some very fine lines were drawn when establishing the Dv values. However, the values used have been carefully checked against actual performance records. I am unaware of any case where a Power Index Rating derived from the formula did not accurately reflect the performance of a bullet in actual usage.

As an example of the formula's application, let's run through a simple exercise.

Question: How does the 38 Special 95-grain SJHP Remington Factory + P load compare to the 38 Special 158-grain LHP Winchester factory + P load in a three-inch barrel? By measurement, the 95-grain Remington bullet delivers a velocity of 1100 ft/s and the Winchester 158-grain bullet delivers a velocity of 875 ft/s.

To determine our answer we have the following:

$$PIR = \frac{V^2 ETvBg}{12111} \times Dv$$

### **Remington Bullet**

(As specified in a 3" barrel)



$$\text{PIR} = \frac{1100^2 \times .0100 \times 95}{12111} \times 1.0$$

$$\text{PIR} = \frac{1149500}{12111} \times 1.0$$

### **Winchester Bullet**

(As specified in a 3" barrel)

$$\text{PIR} = \frac{875^2 \times .0100 \times 158}{12111} \times 1.0$$

$$\text{PIR} = \frac{1209687.5}{12111} \times 1.0$$

$$\text{PIR} = 99.88337 \times 1.0$$

(Round to nearest whole number.)

$$\text{Power Index Rating} = 100$$

Therefore, the Winchester load in question will perform at a somewhat (5.3%) higher level than the Remington load. Obviously, in a shorter barrel the results would be somewhat different. In a two-inch barrel, the results would be as follows, given a velocity of 990 ft/s for the Remington bullet, which will still expand, and a velocity of 790 ft/s for the Winchester bullet which also still expands:

### **Remington Bullet**

(As specified in a 2" barrel)

$$\text{PIR} = \frac{990^2 \times .0100 \times 95}{12111} \times 1.0$$

$$\text{PIR} = \frac{931095}{12111} \times 1.0$$

$$\text{PIR} = 76.880109 \times 1.0$$

$$\text{PIR} = 76.880109$$

(Rounded to nearest whole number.)

$$\text{Power Index Rating} = 77$$

### **Winchester Bullet**

(As specified in a 2" barrel)

$$\text{PIR} = \frac{790^2 \times .0100 \times 158}{12111} \times 1.0$$

$$\text{PIR} = \frac{968078}{12111} \times 1.0$$

$$\text{PIR} = 81.42003 \times 1.0$$

$$\text{PIR} = 81.42003$$

(Rounded to nearest whole number.)

$$\text{Power Index Rating} = 81$$

Thus a two-inch barrel, in this caliber and with the ammunition being considered, is some 23% less effective than a three-inch barrel.

It can be seen from the above that our formula fully allows for velocity changes, kinetic energy changes, expansion (or lack of expansion) and basic bullet diameters. The formula shows that the heavy lead bullet load was superior to the other in both barrels.

Earlier we stated that the 124-grain FMC 9mm Luger factory load (velocity of 1110 ft/s) possessed almost identical kinetic energy (339 foot pounds) to a 45 Auto 230-grain FMC factory load (velocity of 810 ft/s) with 335 foot pounds. We said that in actual usage the 45 Auto round would outperform the Luger round. Let's apply the PIR formula to both of these loads to see if it reflects the superiority of the 45 load.

$$\text{PIR} = \frac{V^2 E T v B g}{12111} \times D v$$

## **9mm Luger Bullet (As specified)**

$$\text{PIR} = \frac{1110^2 \times .0075 \times 124}{12111} \times 1.0$$

$$\text{PIR} = \frac{1145853}{12111} \times 1.0$$

$$\text{PIR} = 94.612584 \times 1.0$$

$$\text{PIR} = 94.612584$$

(Round to nearest whole number)

$$\text{Power Index Rating} = 95$$

## PIR

### Formula and Values for Power Index Rating of Handgun Ammunition

$$\text{Power Index Rating: PIR} = \frac{V^2 \text{ETvBg}}{12111} \times \text{Dv}$$

In which: V = Velocity in feet per second  
 ETv = Energy Transfer Value  
 Bg = Bullet Weight in Grains  
 Dv = Diameter Value of Bullet

#### ETv Values:

For all bullets that actually expand<sup>1</sup> = .0100  
 For non-expanding bullets with a flat nose  
 equal to 60% of diameter = .0065  
 For all other non-expanding bullets = .0075

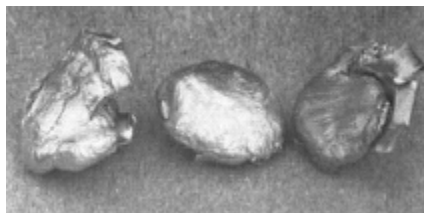
<sup>1</sup>Determined by actual test at range and velocity for which Power Index Rating is desired.

#### Dv Values

Actual Bullet Diameter	Value
.200" to .249"	0.80
.250" to .299"	0.85
.300" to .349"	0.90
.350" to .399"	1.00
.400" to .449"	1.10
.450" to .499"	1.15

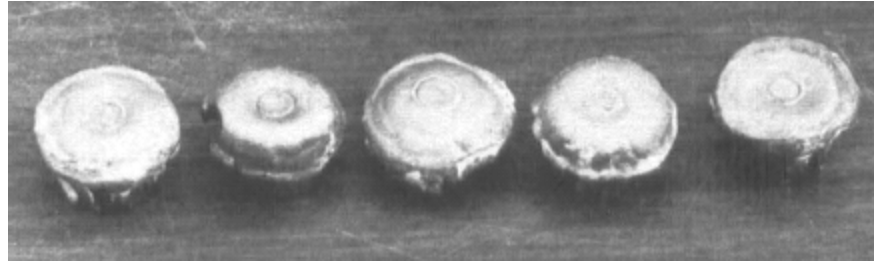


**Here are a fired** and an unfired Speer 100-gr. 9mm bullet, and Winchester 115-gr. Silvertip 9mm's also unfired and fired. Most 9mm Luger expanding bullets perform very well but these two types afford classic expansion every time at all practical ranges.

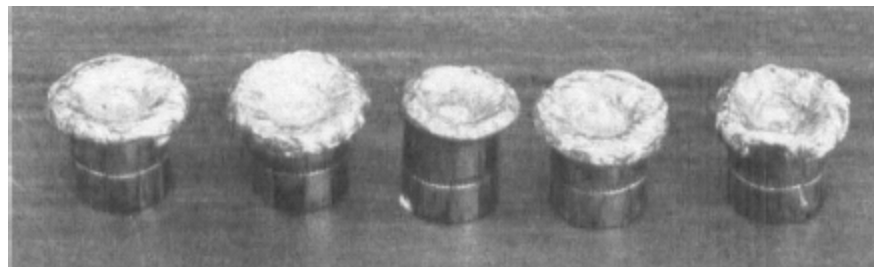


**These three fired** Speer 100-gr. 9mm Luger hollow points were recovered from wet phone books at 7 yards. They perform as well or better than most

of the bullets the author has tested and so are favorites for hunting varmints with a handgun. They would, of course, attain very high ratings in the PIR System.



**The difference** in barrel length with regard to bullet expansion is clearly shown by these photos. The bullets above were fired from a 4-inch revolver and those below from a 3-inch revolver. The loads are identical. The velocity gain in the longer barrel produced classic expansion while the shorter barrel results were almost marginal for expansion, as evidenced by the third bullet.



## 45 Bullet (As specified)

$$\begin{aligned} \text{PIR} &= \frac{810^2 \times .0075 \times 230}{12111} \times 1.15 \\ \text{PIR} &= \frac{1131772.5}{12111} \times 1.15 \\ \text{PIR} &= 93.449963 \times 1.15 \\ \text{PIR} &= 107.46746 \\ &\text{(Round to nearest whole number.)} \\ \text{Power Index Rating} &= 107 \end{aligned}$$

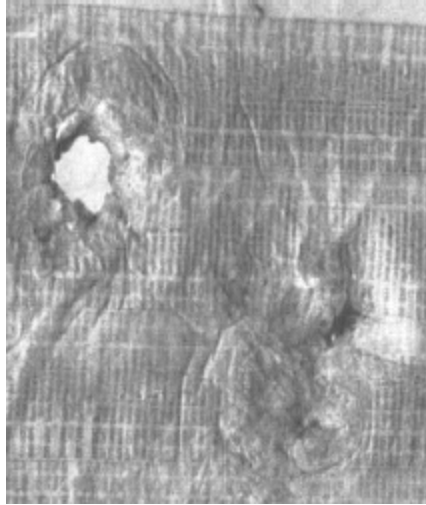
The clear advantage of the 45 Auto in actual usage is indicated by the formula showing it 12.6% more efficient. To further prove our point let's consider a 9mm Luger round loaded with a 115-grain Silvertip Hollow

Point to a velocity of 1255 ft/s (a Winchester factory load). This bullet does expand remarkably well.

$$\begin{aligned}\text{PIR} &= \frac{V^2 \text{ETvBg}}{12111} \times Dv \\ \text{PIR} &= \frac{1255^2 \times .0100 \times 115}{12111} \times 1.0 \\ \text{PIR} &= \frac{1811278.7}{12111} \times 1.0 \\ \text{PIR} &= 149.5564 \times 1.0 \\ \text{PIR} &= 149.5564 \\ &\text{(Round to nearest whole number.)} \\ \text{Power Index Rating} &= 150\end{aligned}$$

In this example we find the expanding 115-grain bullet load in the 9mm Luger vastly superior to the 124-grain non-expanding bullet load in the same caliber and also greatly superior to the 45 Auto 230-grain non-expanding bullet. And this is a very real reflection of the various loads' effectiveness in actual usage.

Because the PIR formula takes every possible aspect into account, the use of a wrong value or a wrong velocity can cause serious errors. For this reason, if you wish to compare the Power Index Rating of any given load at 25 or 50 yards (or any other range) you must first determine if your chosen load will offer bullet expansion at the range in question and then apply the correct ETv value. You will also need to know the exact velocity of your load at the range in question. Velocities may be obtained by actual measurement with a chronograph or from various data sources. After you have used it, the Power Index Rating system will prove itself to you as an unfaltering, easy-to-use system that will reflect a bullet's actual performance. (Please keep in mind that everything connected with the PIR system is copyrighted. Any one is free to use the system; however no commercial application of the PIR may be made without the written consent of the author.)



**Holes in these pages** were made with a 380 Auto. The large hole was made by an 85-gr. Winchester Silvertip which expanded perfectly. The others were made by Federal 90-gr. hollow point and a Remington 88-gr. hollow point. The channel created by the expanding bullet is much larger than its expanded diameter. The PIR System will accurately reflect such differences in bullet performance.

The Power Index Rating system has been applied to rifle cartridges wherein a value of 1000 equals an adequate amount of power to kill game of 300 pounds. However, almost all rifle bullets are of the expanding type, so the current kinetic energy levels continue to be fairly accurate appraisals of a load's worth.

I cannot over-stress establishing the actual velocity obtained with your handgun. This is particularly true in guns with three-inch or shorter barrels. In such guns, actual firearm dimensions can cause significant changes in velocities from one handgun to another, even the same brand, model and barrel length.

In testing two two-inch 38 Special revolvers, I found one would give consistent expansion with a 110-grain hollow point load while the other revolver wouldn't expand that or any other tested load. Results in four-inch or longer barrels are far more consistent and one can usually count on similar results from one gun to the next. Velocity averages should be taken from 15-shot strings, at least; 5-shot strings do not reveal average velocities sufficiently.

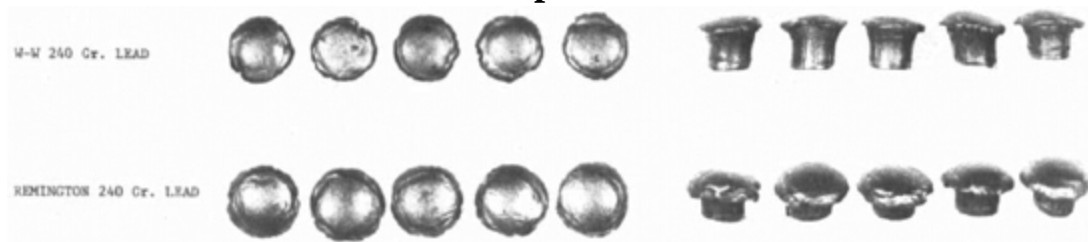
## **POWER INDEX RATING CHART**

CALIBER	BULLET			POWDER		Barrel Length (Inches)	Velocity in ft/s	Bullet Expansion	Kinetic Energy in Foot Pounds	Power Index Rating
	Wgt./Grs.	Brand	Style	Type	Wgt./Grs.					
22 Short SV	29	all	LRN	Factory Load		6	865	No	48	11
22 Short HV	29	all	LRN	Factory Load		6	1010	No	66	15
22 Long HV	29	all	LRN	Factory Load		6	1095	No	77	17
22 Long Rifle SV	40	all	LRN	Factory Load		6	950	No	80	18
22 Long Rifle HV	40	all	LRN	Factory Load		6	1060	No	100	22
22 Long Rifle HV	37	CCI	LHP	Factory Load		6	1080	Yes	96	29
22 MRP	40	all	JHP	Factory Load		6 1/2	1480	Yes	195	58
22 Jet	40	Rem.	JSP	Factory Load		8 1/2	2100	Yes	392	117
25 Auto	45	Win.	EP	Factory Load		2	835	Yes	70	22
25 Auto	50	Rem.	PMC	Factory Load		2	910	No	73	17
30 Luger	93	all	PMC	Factory Load		4 1/2	1220	No	307	77
32 Short Colt	80	all	LRN	Factory Load		4	745	No	99	25
32 Auto	71	Win.	PMC	Factory Load		4	905	No	129	32
32 Auto	80	Win.	STHP	Factory Load		4	970	Yes	125	42
32-20 WCF	100	Win.	LFN	Factory Load		6	1030	No	237	67
9mm Luger	95	Win.	JSP	Factory Load		4	1355	Yes	387	144
9mm Luger	115	Win.	PMC	Factory Load		4	1155	No	341	95
9mm Luger	115	Win.	STHP	Factory Load		4	1255	Yes	402	150
9mm Luger	115	Fed.	JHP	Factory Load		4	1165	Yes	347	129
9mm Luger	124	Rem.	PMC	Factory Load		4	1110	No	336	95
9mm Luger	100	Speer	JHP	231	5.8	4	1300	Yes	375	140
9mm Luger	125	Speer	JSP	231	5.6	4	1150	Yes	367	136
38 Special + P	95	Rem.	JHP	Factory Load		2	990	Yes	207	77
38 Special + P	95	Rem.	JHP	Factory Load		3	1100	Yes	255	95
38 Special + P	95	Rem.	JHP	Factory Load		4	1175	Yes	291	108
38 Special + P	95	Win.	STHP	Factory Load		2	945	Yes	188	70
38 Special + P	95	Win.	STHP	Factory Load		3	1050	Yes	233	86
38 Special + P	95	Win.	STHP	Factory Load		4	1100	Yes	255	95
38 Special + P	110	all	JHP	Factory Load		3	880	Yes	186	70
38 Special + P	110	all	JHP	Factory Load		3	975	Yes	232	86
38 Special + P	110	all	JHP	Factory Load		4	1020	Yes	254	94
38 Special + P	110	Siem/ Speer	JHP	231	5.9	6	1090	Yes	290	108
38 Special + P	110	Siem/ Speer	JHP	Bullseye	5.4	6	1090	Yes	290	108
38 Special	110	Siem/ JHP	800-X		7.2	3	950	Yes	220	82
38 Special + P	125	all	JHP	Factory Load		4	945	Yes	248	92
38 Special + P	125	Siem/ JHP	231		5.6	6	990	Yes	272	101
38 Special	125	Siem/ JHP	800-X		6.9	3	875	Yes	213	79
38 Special + P	140	Siem/ Speer	JHP	231	5.5	6	935	Yes	272	101
38 Special + P	158	Win.	LHP	Factory Load		2	790	Yes	219	81
38 Special + P	158	Win.	LHP	Factory Load		3	875	Yes	269	109
38 Special + P	158	all	JHP	Factory Load		4	915	Yes	294	109
38 Special	148	all	LWC	Factory Load		2	525	No	91	29
38 Special	148	all	LWC	Factory Load		3	575	No	109	34
38 Special	148	all	LWC	Factory Load		4	710	No	166	52
38 Special	148	all	LWC	231	3.0	2	550	No	90	31
38 Special	148	all	LWC	231	3.0	3	690	No	118	37
38 Special	148	all	LWC	231	3.0	6	750	No	185	58
38 Special	158	all	LRN	Factory Load		2	630	No	139	39
38 Special	158	all	LRN	Factory Load		3	700	No	172	48
38 Special	158	all	LRN	Factory Load		4	755	No	200	56
38 Special	158	all	LSWC	Factory Load		2	630	No	139	44
38 Special	158	all	LSWC	Factory Load		3	700	No	172	54
38 Special	158	all	LSWC	Factory Load		4	755	No	200	63
38 Special	158	Speer	LSWC	231	4.3	2	655	No	151	48
38 Special	158	Speer	LSWC	231	4.3	3	725	No	184	58
38 Special	158	Speer	LSWC	231	4.3	6	850	No	254	80
38 Special	158	Rem.	LSWC	800-X	5.9	6	880	No	272	86
38 Special	200	all	LRN	Factory Load		2	545	No	132	37
38 Special	200	all	LRN	Factory Load		3	600	No	160	45
38 Special	200	all	LRN	Factory Load		4	630	No	176	49
38 Special	200	Rem.	LRN	800-X	4.6	6	725	No	233	65
38 S & W	145	all	LRN	Factory Load		4	685	No	151	42
357 Magnum	110	all	JHP	Factory Load		4	1295	Yes	410	152
357 Magnum	110	Speer	JHP	231	8.8	6	1370	Yes	459	170
357 Magnum	125	all	JHP	Factory Load		4	1450	Yes	584	217
357 Magnum	125	Speer	JHP	231	8.6	6	1510	Yes	476	177
357 Magnum	140	Speer	JHP	231	8.0	6	1200	Yes	448	166
357 Magnum	158	all	JHP	Factory Load		4	1235	Yes	535	199
357 Magnum	158	Speer	JHP	Unique	8.2	6	1200	Yes	505	188
38 Super + P	130	all	PMC	Factory Load		5	1245	No	448	125
38 Super + P	125	Win.	JHP	Factory Load		5	1280	Yes	455	169
380 Auto	85	Win.	STHP	Factory Load		3	1000	Yes	189	70
380 Auto	88	Rem.	JHP	Factory Load		3	990	No	192	53
380 Auto	90	Fed.	JHP	Factory Load		3	1000	No	200	63
380 Auto	95	all	PMC	Factory Load		3	955	No	192	54
41 Magnum	210	all	JSP	Factory Load		4	1300	Yes	778	322
41 Magnum	210	all	LSWC	Factory Load		4	965	No	434	151
44 Special	246	all	LRN	Factory Load		4	755	No	311	96
44 Magnum	240	all	JHP	Factory Load		4	1180	Yes	742	304
44 Magnum	240	all	LSWC	Factory Load		4	1350	Yes	971	397
44 Magnum	200	Speer	JHP	2400	23.0	7 1/2	1475	Yes	966	395
45 Auto	185	Win.	STHP	Factory Load		5	1000	Yes	411	176
45 Auto	230	all	PMC	Factory Load		5	810	No	335	107
45 Auto	185	all	JWC	Factory Load		5	770	No	244	89
45 Auto	200	Speer	JHP	231	6.3	5	950	Yes	401	171
45 Colt	225	Win.	STHP	Factory Load		5 1/2	920	Yes	423	181
45 Colt	225	Fed.	LHP	Factory Load		5 1/2	900	Yes	405	173
45 Colt	255	all	LRN	Factory Load		5 1/2	860	No	419	134

## PIR GUIDELINES

Level	PIR Values	Application
1	24 or less	Loads within this value range should never be used for personal protection. They are suitable only for target shooting and plinking.
2	25 to 54	Loads in this value grouping would require very exact bullet placement if used for personal defense. If a killing shot was not made, your antagonist might only be further enraged. Loads in this group could prove satisfactory for small game but must be considered less than satisfactory for personal defense.
3	55 to 94	Loads within this PIR grouping are somewhat popular as personal defense weapons. However, the experience of many people shows these cartridges to be marginal even when good hits are made. Many police departments are armed with cartridges in this group. However, more than one police officer has lost his life when he was unable to stop an assailant with a load from this group. Loads in this category must be considered at best marginal.
4	95 to 150	Loads fitting in this category will meet the requirements of most military applications. They will also prove adequate for police departments that wish to arm personnel with weapons that are likely to prove effective under almost any situation. These are ideal loads for personal protection. Many police departments are now equipping their men with loads from this grouping.
5	151 to 200	Loads in this range will usually take the fight out of any opponent with only fairly placed hits. However, loads of this power level are difficult to control and most shooters have trouble scoring hits due to the recoil and noise levels. With extensive practice they can be mastered and prove useful to a highly skilled shooter.
6	201 or more	Loads in this category are best described as overkill in self-defense. They are hunting loads best used for protection from bears gone crazy rather than against human opponents. Few shooters can develop the necessary skills to handle the very heavy recoil and noise levels of cartridges with PIR values in the 200 plus range.
<b>PLEASE NOTE:</b>		It is impossible to suggest specific values for any specific application unless all the criteria are known. The above table is offered as a general guideline.

### Cal. 44 Component Bullets



**Only the 44 Magnum** was capable of driving lead semi-wadcutters fast enough to insure the positive expansion of this style bullet. The 44 S&W Special won't do it.

Bullet expansion does not always occur when one might expect. For example, the new Sierra 125-grain Hollow Point bullets will reliably expand in my three-inch S & W Chiefs Special when pushed by 6.9 grains of DuPont 800-X. The Sierra 125-grain Soft Point bullet will not show the slightest trace of expansion with the same powder charge. In fact, there is no load that will cause expansion of the Soft Point bullet in that gun. The new Sierra 38/357 Hollow Point bullets with notches cut into the jacket nose have proven to be the very best expanding handgun bullets normally available to reloaders.

In two-inch 38 Specials one must stay with 95 to 110-grain bullets if positive expansion is desired. Very few will offer any expansion with heavier bullets and none of those I have tested would offer expansion with bullets over 125 grains unless + P loads are used. In three-inch 38 Specials bullets up to 125 grains can usually be made to expand reliably if you select



the proper bullet and powder charge. +P loads will offer expansion regardless of bullet weight. And in four-inch 38 Specials, bullets up to 140 or 158 grains will often expand if good bullets are used with appropriate powder charges.

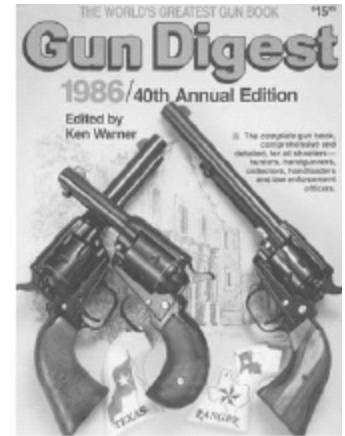
Other calibers are equally affected by changes in barrel length.

Please keep in mind +P loads must be avoided in any aluminum frame revolver. Many shooters have found the Speer 110-grain Hollow Point 38 Special ammunition loaded to standard pressures, will offer expansion in three-inch or longer 38 Specials when no other standard pressure ammunition will. This load is worth investigating when you want maximum performance from an alloy frame revolver.

There are a number of good bullets which offer good expansion in handguns of various calibers, properly used. The accompanying chart lists many popular loads for you. If you want to select maximum performance ammunition for your handgun it is up to you to assure, by testing, that the bullet you use will expand. The Power Index Rating system clearly shows only expanding bullets get the maximum potential from a handgun. If a load that interests you is not in the table, apply the PIR formula after determining if the bullet will expand in your gun.

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1986



## The Extraordinary Glock

From no idea to radical prototype to selected service pistol in under four years? Where was the bureaucracy? ■ Raymond Caranta

**I**N OCTOBER, 1982, a Belgian magazine, over the signature of a German gun writer, reported a certain Austrian Glock 17 pistol, chambered in 9mm Luger, mostly made of plastics and stampings. The Glock 17, it was said, was considered for adoption by the Austrian army.

The gun was displayed nowhere at European shows, and was not taken very seriously until this year, when it was learnt that the Glock 17 had been officially approved as the Austrian Army service pistol.

It replaces the German P-1, the light alloy descendant of World War II's P38.

In the gun business, only a few people knew the Glock Company, which was until recently mostly involved in cutlery. Headed by Gaston Glock, an independent engineer specializing in advanced plastics and metal technology for more than a quarter of a century, the firm has only 45 employees. It is located in Deutsches Wagram in Austria.

The first significant commercial success of the Glock Company occurred in 1978 when its Field Knife 78 was adopted by the Austrian army, which placed orders for 150,000 pieces since then. About the same quantity was sold on the sporting market. Then, Gaston Glock designed, in connection with Dynamit Nobel, the German giant of chemical products, powders and ammunition, an extraordinary hand grenade made of plastics and bursting into 5,000 fragments.



**The Glock 17** is very low in the hand contrary to most pistols using this style of barrel mounting.

In 1980, when Gaston Glock learned that the Austrian army contemplated replacing their old service pistols with a double-action model featuring a large magazine capacity, he immediately realized that the Steyr pistol could not be alone. He soon toured the competitors, asking for sub-contracts as an industrial compensation, should a foreign product be selected.

Then, back in his facilities, he was amazed at the conventional technology on which most competitors relied and was soon analyzing the patents and consulting German-speaking experts about the requirements for a new design. He was not, himself, a firearms enthusiast, but five months later, still in 1980, he had developed a first prototype of the Glock 17 which

was selected, late in 1983, as the service pistol of Austria. The Army's order is 25,000 units, 5,000 of them to be delivered in 1984.

The Glock 17 is a 9mm Luger short recoil-operated pistol on the Browning "High Power" principle as improved by SIG in their P-220, P-225 and P-226 models. Its capacity is 17 rounds. It is, regardless of operating principle, a most unusual gun.

The slide is a square-section extrusion accommodating a welded machined bolt which carries the striker and pivoted Walther-style extractor. The one-piece hammered barrel is of the linkless cam style, but the breech end is square and matches the inner slide square contour, which offers the centering function necessary for ensuring a high level of accuracy. This slide is 7 inches long and guided over an interrupted length of 5.19 inches by rails. The recoil spring unit is conventionally located under the barrel and the slide-barrel-recoil spring assembly weighs 16.8 ounces so as to dampen the recoil.

The receiver is an extremely light high-resistance casting of plastic material weighing only 5 ounces, including the trigger mechanism. The receiver slide guides, insuring the sturdiness of the pistol over an expected 15,000-shot service life with NATO ammunition, are made of sheet-metal imbedded in the plastic.



**The steel** slide-barrel-recoil spring assembly represents 40 percent of the total weight of the pistol.



**Note the slender grip** of the Glock 17 in spite of the unusual 17-shot magazine capacity; design allows variation in pitch.

The solid trigger guard is square for two-hand shooting and, as the pistol is striker fired, the trigger mechanism is entirely enclosed in the upper section of the receiver. Therefore, the grip, which only accommodates the magazine, is provided with an important hollow section at the rear and can be pitched as required, according to the customer's wishes.

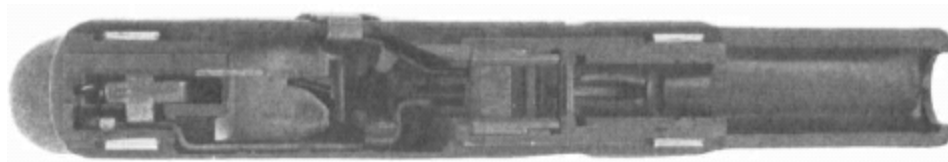
The two-column staggered magazine is also a new design as it is entirely made of high resistance plastic material, with the exception of the spring and lips which are metallic. Thus it weighs only 1.43 ounces, empty, while accommodating nearly a half-pound load of service ammunition. The magazine catch is fitted at the rear of the lower branch of the trigger guard. The empty magazine lags a little and must sometimes be withdrawn by the weak hand, but this trait disappears when the gun has been broken in.

While not new at all, as its principle was already used in the Austrian cavalry pistol model of 1907 (popularly known as the 8mm Roth-Steyr), the

Glock's firing mechanism is the only "pre-cocked" design made today. Single-action pistols must be hand cocked for the first shot; those shooting only double-action require a long pull each shot; and those fitted with selective lockwork require two trigger-finger positions between the first and following shots. The Glock 17 firing mechanism requires a single trigger-finger position as all the shots are fired in a "semi-double-action" mode; the trigger pull equals that of a good service pistol. The trigger travel, while shorter than that of a typical double-action gun, is longer than that of a single-action pistol.

With the Glock 17, when chambering the first round, the striker is "pre-cocked", i.e. it is retained at about half travel and the firing pin is partially compressed. The effort necessary for firing the chambered round is set at about five pounds instead of ten, as usually required in a genuine double action mechanism. The trigger travel is limited to .40-inch.

This facilitates the basic training, avoids the "breaking the glass" climax of single-action handguns and makes the pistol with a chambered round instantly available for action. In case of misfire, the slide must be withdrawn with the weak hand only .40-inch to get another striker blow.



**The trigger** mechanism is entirely made of stampings; gun is striker-fired.

Beside the "semi-double-action" firing mode for all shots, the Glock 17 pistol is fitted with a very clever automatic trigger safety lever consisting of a spring-loaded thin metal plate fitted along the vertical center line of the .27-inch thick plastic trigger. At rest, the safety lever protrudes in front and behind the trigger, its heel preventing any trigger motion until it is depressed. This is automatic when the finger pulls the trigger. Under this action, the front end of the safety lever swings backwards, retracting the upper rear section which normally bears against the receiver, jamming the trigger. The pressure required is very low and the operation seems highly reliable.

With its low and square slide fitted over its slim plastic receiver, the Glock 17 looks quite strange at first glance. The highly pitched grip is attractive. At first handling, one is astonished at its unusually low weight of

23.2 ounces. However, when the gun is loaded with 17 service rounds, its 31-oz. weight, while still very low, enables an excellent control in practical shooting.

The grip of the Glock 17 is perhaps the best of the market as it is suitable for every size of male or female hand, which is an exception to usual large capacity double-action pistols chambered for such a powerful ammunition. Moreover, the high pitch of this grip, combined with the “semi-double-action” feature, is excellent for instinctive shooting.

This grip is exceptionally flat despite the 17-shot magazine capacity (1.18-inch thick) and its sanded temperature-proof plastic surfaces afford a very pleasant contact to the shooting hand and are not slippery. Empty, the Glock is balanced above the front area of the trigger, but this point moves about half an inch backward when loaded with 17 rounds.

The gun has Patridge-type sights and they are just 1.34-inch above the shooting hand. The rear sight notch contour is underlined in white while the ramp front sight features a 1/10-inch white dot. They are better than the average for combat shooting and still good for slow fire.

A seasoned shooter using the Glock 17 for the first time will need some dry-firing to get used to the peculiar trigger pull. Nevertheless, the shooting technique is very simple; while raising the pistol and controlling your breathing, briskly pull the trigger over the first 7/8-in. until you feel a definitely stronger resistance and, then, carefully aim while pressing the last 1/8-in. of pull. Tyros will find this quite natural, as will double-action revolver shooters, but people used to conventional automatics may suffer at the beginning.

Computation shows a respectable recoil velocity (defining the pressure on the hand) of 10.55 feet per second, but the recoil actually felt seems lower and just a little more than that of a conventional 9mm Luger service pistol such as our old Beretta Brigadier.

In 25-meter slow fire, off hand, our scores were in the 250 out of 300 range at the I.S.U. big bore target featuring a 2-inch ten, which is standard performance for a service pistol, the best scoring slightly above 260 of 300 and the worst under 240 of 300. On a combat shooting course involving a long run over the 17-shot magazine string with stopping, turning and shooting on command, the Glock 17 was rated by this writer as very good, but his two partners, who normally shoot Star and Colt automatics, missed several times and were slower than usual.



**The automatic** trigger safety of the Glock 17 is most efficient; it is also very simple.



**Thirty rounds** off hand at 25 meters under I.S.U. slow fire conditions scored 249 out of 300; the 10-ring is two inches (5cm) wide





**Not many problems** for Austrian Gls here. Herr Glock knows simple when he sees it.

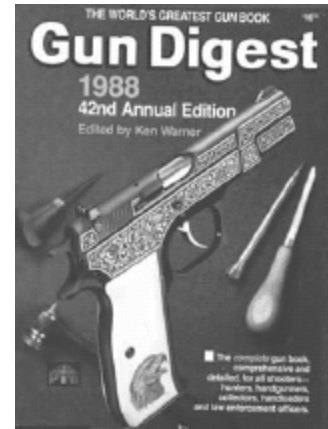
Thirty rounds off hand at 25 meters under I.S.U. slow fire conditions scored 249 out of 300; the 10-ring is two inches (5cm) wide.

In our sample, bearing a serial number in the 200's, we shot 364 rounds without cleaning that included 100 rounds of French service ammunition made in 1982; 64 very old French sub-machine gun rounds with hard primers; 50 new German Geco half-jacketed rounds; 50 commercial full jacketed Geco rounds; 50 commercial full jacketed Remington rounds; 50 reloads with jacketed bullets and French powder. The only malfunction was a misfire with the old submachine gun ammunition and some slide hesitation when chambering the first half-jacketed truncated Geco round from the magazine.

The Glock 17 is an original, inexpensive, compact, accurate and reliable service pistol featuring a clever but controversial construction leading one to think of it as the "Tokarev" of this turn of century.

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1988



## A Second Look At The Glock 17

■ Donald M. Simmons

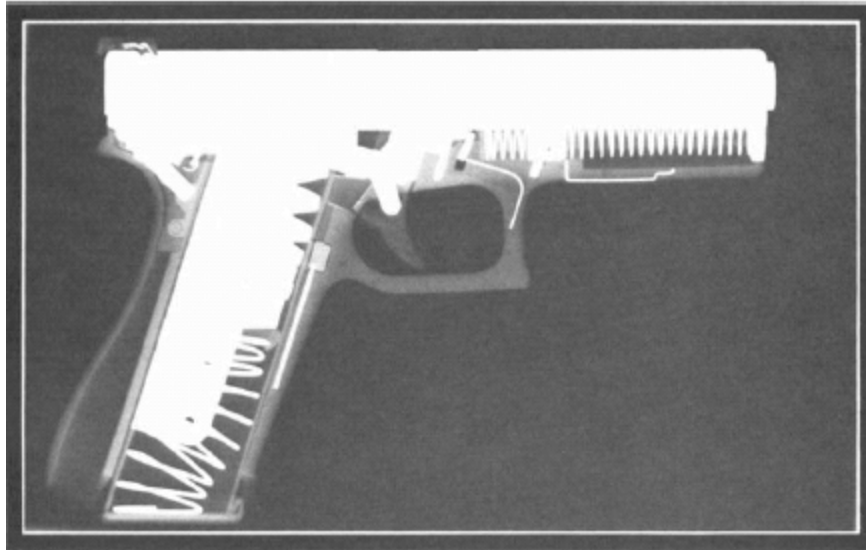
**W**HEN THE Glock 17, also known as the Plastic Pistol, started arriving on these shores, a rhubarb developed over a “pistol that could pass through our airport security systems.” It seems pretty late to remind one and all that the Glock 17 automatic pistol can be spotted by security personnel, that it is not an all plastic pistol, and even if it was it would, if loaded, still be detectable by X-ray, but all those things are true.

Because of the media circus carried on by the anti-gun crowd over the Glock 17, some of its interesting design points and innovations that have nothing to do with airport security have been overlooked. The Glock was designed by Gaston Glock in just 6 months; even more impressive is the fact that Herr Glock had never designed a firearm before and was, in fact, completely unfamiliar with firearms.

The Glock 17 is manufactured in Deutsches-Wagram, Austria, in a small progressive plastic injection moulding company. In 1983; Gaston Glock

began with an order from the Austrian Military for 28,000 Glock 17 pistols, which is, as they say in poker games, not bad for openers.

The Glock pistol should not be called a plastic pistol, partly because the bulk of its weight is steel. What is unusual about the Glock is the method used to intermingle steel stamping with a polymer plastic which improves each. The Glock's frame starts life as a mould into which various steel stampings are inserted. This mould is then injected with a thermal setting plastic under exceedingly high pressure and, after curing, there is a complete frame assembly with its necessary strong points reinforced with steel. This strong light frame is impervious to moisture and can stand extremes in temperature. So much for the obvious.



**X-ray of the Glock 17.** Metal parts show; plastic is cloudy.

The overlooked innovations are as exciting if not more so than the obvious fact that the frame is mostly plastic.

### **Barrel**

The barrel of the Glock is steel and basically the barrel found in a Browning Hi-Power pistol with two big exceptions. The barrel locks to the slide during initial recoil by a rectangular boss fitting the slide's ejection port, thus eliminating ribs on the barrel and grooves in the slide, found in the Browning. Though the Glock ejects to the right, its ejection port is in the middle of the slide to give a large locking area. This type of ribless locking was found in the French Model 1935-S. The lower lug on the Glock

barrel has a 45-degree camming surface which, during recoil, disengages the boss from the ejection port, and that unlocks the slide to continue the full recoil. The mating surface which acts on the barrel's lug is a steel insert pinned into the plastic frame.

The other exception is the rifling, not conventional land and groove, but more like that in some Heckler & Koch barrels. Glock calls their rifling "hexagonal" rather than "polygonal." Instead of engraving a series of grooves in the bullet, you squeeze it into a hexagon which spirals from breech to muzzle one turn in 10 inches. You get bullet stabilizing and a much easier barrel to clean. In cross-section, the Glock's barrel is a series of six flats connected by small arcs. The spherical distance around the inside of the rifling is the same as the circumference of a 9mm projectile. It forms a new shape, but doesn't distort; the bullet retains its original length.

### **Magazine**

Gaston Glock obviously was not too familiar with the normal takedown of a pistol's magazine. The floorplate of most European pistols is removable by pushing up on the dimple on the base plate with a loaded cartridge and sliding the floorplate off forward. Not so with the Glock 17, where you just squeeze the sides of the magazine tube right over the base plate and the plate can be slid off frontwards, which allows the disassembly of the entire magazine for cleaning. The Glock's magazine is plastic with a metal insert. The pistol comes with two magazines and a plastic loading tool that really works.

### **Safeties**

There are four types of safety devices in a Glock 17. The one that is not found is the more or less standard manual safety. Safety number one is a trigger safety, which is reminiscent of the turn of the century Iver Johnson revolvers and the Sauer "Behörden" Model 1930 pocket automatic pistol. This safety, located in the finger pressing area of the trigger, must be depressed to allow the trigger to be pulled and so prevents the gun from being fired when, as one example, it is inserted into a too-tight holster.

The Glock has a striker safety or striker block. This locks the forward movement of the striker, and, is only deactivated when the trigger is pulled to its extreme rearward position, as in firing the pistol. The purpose is to prevent firing in the event that the pistol is inadvertently dropped or otherwise impacted.

The Glock is unique in the third safety device, which puts the trigger in a semi-cocked position, from which it requires a long pull to fire the pistol. We will be going into this unusual mechanism in detail further on.

The last safety feature is the disconnecter which holds the pistol to just one shot for each pull of the trigger. In the Glock, the disconnecter is hardened sheet steel and it puts the sear's nose into engagement with the striker with each cycle of the slide, whether the trigger is released or not.

With all those safety features, the Glock could be carried with the trigger in the semi-cocked position and the chamber loaded, but in our liability-minded society the Glock company says, "No way!" I quote directly from their manual: "Always carry your pistol empty, with the trigger rearward except when you intend to shoot, so that your pistol cannot be fired where it is unsafe to do so."



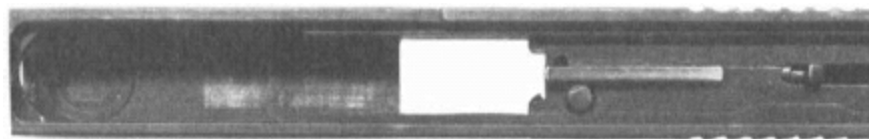
**Right side** of the Glock 17 pistol. Notice that the slide is serialized, but the frame isn't.

### **Fire Control**

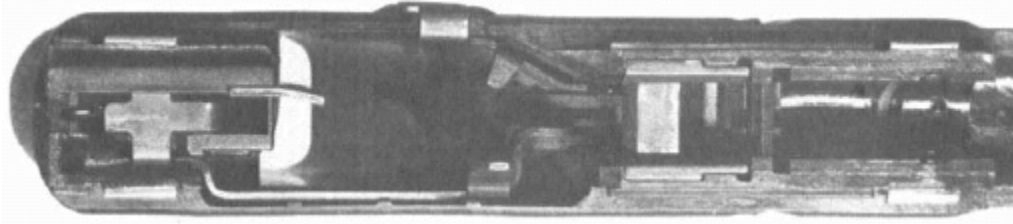
The words double action and two-stage trigger have been applied to the Glock 17. Technically, neither is correct. The Glock has a trigger cocking action, but it goes much further than mere trigger cocking. The Glock firing pin or striker is spring loaded to move forward, but the sear which engages the striker is spring loaded in the opposite direction. It is a system in which,

at rest, two springs' tensions counter-balance each other. When the slide is retracted and returns to the closed position, the striker is partially cocked, and when the trigger is subsequently pulled with a predetermined tension, the striker is pushed to its full-cocked position and then released and the pistol fires. By either increasing the tension on the sear spring or decreasing the tension on the striker spring, the trigger pull can be reduced to whatever tension is wanted. The feel of the Glock pull has been likened to that of a two-stage trigger, but that, too, is not accurate. A typical two-stage trigger has a low tension slack take-up, followed by a heavier sear release stage. In the Glock, the effort required to pull the trigger is nearly constant from initial contact until the striker is released. The Glock's trigger might better be called two-function. First it cocks the striker, and then releases it. The trigger pull on my Glock is a very constant 5 pounds, with little or no over-travel.

The idea has been expressed that Glock might go to a plastic slide. I doubt this very much from an engineering point of view. In the design of a self-loading pistol, the weight of the slide is a predetermined factor after the type of cartridge has been decided on. Just to take the subject of the weight of the slide to the ridiculous, suppose that the slide and the bullet weighed the same amount, then the bullet would leave the muzzle and the slide would recoil at the same high velocity. This just won't work. The slide must travel at a speed that can be stopped at full recoil without damage to itself or other parts. When you are designing for the 9mm cartridge, a slide using a Browning system of locking and unlocking should weigh around 7/10ths of a pound. To get that weight in the same density plastic now used in the Glock, the slide would have to have about seven times the size — IMPOSSIBLE.

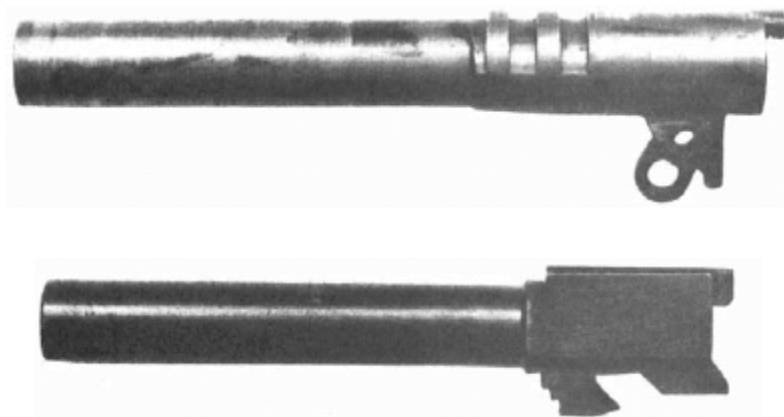


**The slide with barrel** and recoil spring removed. The round button just behind the ejection port is the striker block.



**The polymer** plastic frame showing the metal inserts, which are emplaced before the plastic is molded.

The Glock's slide now is made from steel bar stock and is fully machined. The next logical step to reduce cost would be to go to an investment cast slide with little or no machining required. If a plastic slide seemed still to offer a savings, then one which had a steel insert in the breech and ejection port area would be required. There would also have to be a lead insert to get the weight back up to the 7/10ths of a pound.



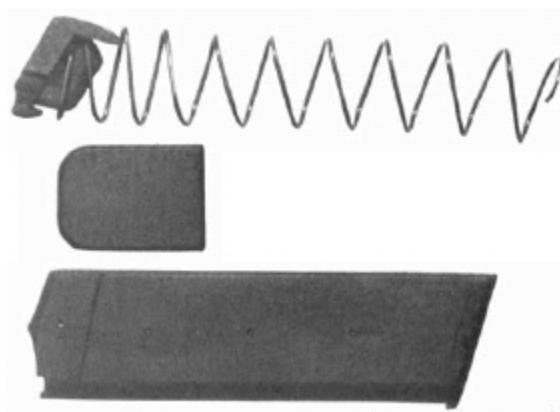
(BELOW) A **Browning/Colt type** barrel (top) is very complex, compared to the Glock's barrel with its open cam, straight line.



(LEFT) **The state-of-the-art** holstered Glock presents itself at the nicely aged FBI slant.



(RIGHT) **The Glock** and its plastic holster are uncompromising — that is, it is all new, all the way, except maybe the thumb release.



**The Glock's magazine** completely stripped, as it should occasionally be for a thorough cleaning, is surprisingly conventional.

Do I like the Glock pistol? To this I can give an unqualified, YES. I further think that one unfamiliar with conventional automatic pistols would quickly master the Glock's system. And it is not so far out of line as to confuse practiced persons. It is a fine pistol.

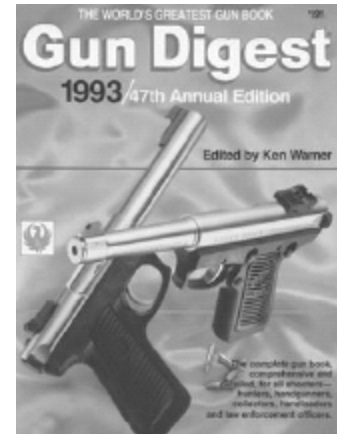
*The author wishes to thank Mr. Karl Walter, U.S. sales manager for Glock, for his assistance in the writing of this article. Also Mr. Fred Pelcen*



*for his invaluable help in X-raying the Glock 17.*

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1993



## Blowback Nines

Some designs succeed, but most have not. z John Malloy

**T**HE 9MM PARABELLUM (9mm Luger) cartridge was among the early high-pressure pistol cartridges, designed for an extremely strong, locked-breech action. It hardly seems suitable for a straight blowback action, but such pistols have been made and are still being made today.

The cartridge, introduced in 1902, was adopted by the German navy for their Parabellum or Luger pistol of 1904. It became known worldwide following its adoption by the German army for the best-known Luger ever — the famous Pistole 1908 or P08.

The design of the Luger allowed-in fact, required — a high-pressure cartridge. Consider that the entire upper part of the pistol — the barrel, receiver and breechblock, with its toggle lock and contained mechanism — must be moved backward after firing.

At a point, the toggle unlocks, the barrel and receiver stop, and the breech-block continues rearward to eject the fired case. Then, enough residual force must be available from spring compression so that the

barreled receiver will return and the breechblock will run forward to chamber the next cartridge.

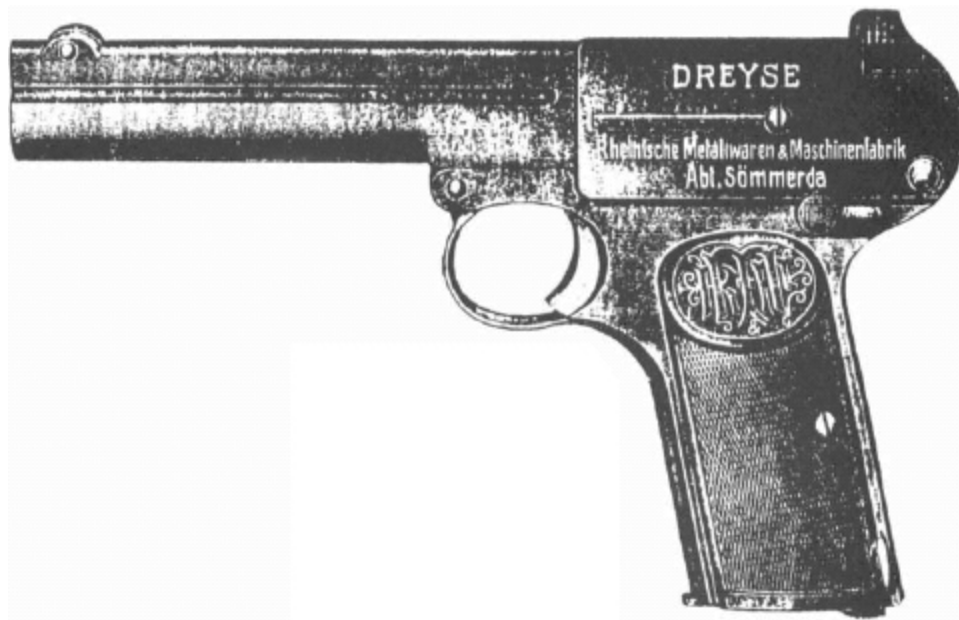
Obviously, the 9mm Parabellum cartridge had to generate high pressures to make such an action function reliably.

Still, shortly after the introduction of the P08, attempts were made to adapt this cartridge to a blowback design. And real blowback nines arrived on the scene within a few years of 1908. The efforts to make successful blowback pistols chambered for the 9mm Parabellum round spread to a number of countries throughout the world, spanned the intervening decades and continue today.

The first was the German Dreyse. Nikolaus von Dreyse (1787– 1867) had been the inventor of the famous Prussian “Needle-Gun.” He was already long dead when his company was taken over by Rheinische Metallwaren und Maschinenfabrik (later known as “Rheinmetall”) in 1891. In 1907, the company brought out its first pistol, a 32-caliber blowback. Because of name recognition and company tradition, the pistol was offered as the “Dreyse,” although it had actually been designed by Louis Schmeisser.

A year after the introduction of the Dreyse 32, the German army adopted the 9mm cartridge. Schmeisser began to modify his design for the new army round. He found that the pressure of the cartridge could be contained with an extremely stiff recoil spring. The 9mm Dreyse pistol probably has the strongest recoil spring ever used in a pistol. Because of the heavy spring, it was almost impossible for any but the strongest of men to operate the first prototype.

The solution was the addition of a connector bar along the top of the pistol. The bar was pivoted at the front. When it was lifted at the rear, the slide and recoil spring were disconnected. The slide could then be pulled back easily, compressing only the striker spring. With a cartridge chambered, the connector was pushed back into place, connecting the recoil spring to the slide again.



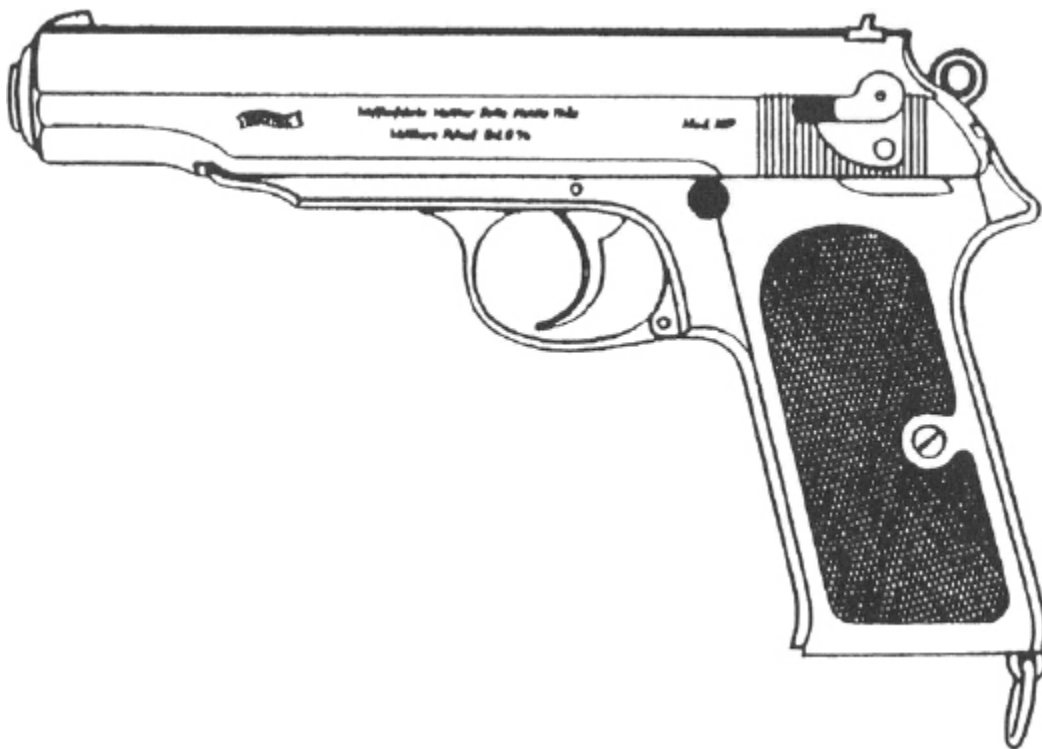
**The Dreyse 9mm** pistol was the first attempt to use the 9mm Parabellum cartridge in a blowback design. It used an extremely powerful recoil spring to delay opening of the action. When the rear sight was lifted, the recoil spring was disconnected so that the slide could be easily retracted. (From the 1911 ALFA catalog).

Dreyse 9mm pistols were offered for commercial sale about 1910. When the World War began in 1914, the Dreyse military 9mm was reportedly considered as a substitute standard for the German army, but was not adopted. Still, a small number were apparently carried by officers as personal side-arms. Production stopped before the end of the war and the total number manufactured was very small — perhaps not more than a few hundred pieces.

The problem with the Dreyse military pistol centered on the spring disconnecting mechanism. Apparently the system worked as designed at first. However, as it was subjected to wear and the strain of firing, the mechanism became unreliable. Old reports suggest that the spring lock could be jarred out of position during shooting. The construction of the pistol would keep the slide from being blown off toward the shooter, but recoil without any spring control could put the pistol out of service.



**The scarce Walther** Model 6 was introduced during WWI. A well-made pistol, it was not satisfactory with continued use of high-pressure military ammunition.



**The experimental** Walther MP blowback 9mm was made in several prototype variations in the early 1930s. It was essentially an enlarged version of the firm's successful PP and PPK pistols. (Courtesy of Triple-K Mfg. Co.)

World War I introduced another German 9mm blowback pistol that fared slightly better than the Dreyse — the Walther Model 6.

The Walther firm had been founded in 1886 by Carl Walther and had manufactured sporting rifles and shotguns into the early 1900s. In 1908, the first pistol — the Model 1 — was produced. It was a blowback 25-caliber pocket model. Thereafter followed a successful line of small pistols in 25 and 32 calibers. The Model 5 was introduced in 1913, the year before the war began.

The need for more pistols during the early stages persuaded Carl Walther to enlarge his basic blowback design to use the 9mm service cartridge. The resulting pistol, the Model 6, had a fairly heavy slide and a heavy recoil spring. It also had a feature easy to overlook when considering recoil control — a hammer. The Model 6's hammer is concealed, but the effect was present. The uncocked hammer was held forward by its spring. Because of the short lever arm presented at the point of contact with the slide, it offered considerable initial resistance to the rearward movement of the slide. Once the hammer began to move, resistance fell off rapidly. At the moment of greatest chamber pressure, though, the hammer gave at least some extra control that the striker-fired Dreyse had not had.

Unfortunately, it was not enough. The Model 6, as were all Walther products of the time, was beautifully made and felt good in the hand. However, neither the weight nor the recoil spring was quite enough, and the pistols could be battered by extensive firing with the service load. They were, however, carried as personal sidearms by some German officers during the war. By early 1917, though, the Model 6 was no longer in production. The blowback 9mm Model 6 was the last pistol with which Carl Walther was directly associated. In 1915, the year of introduction for that pistol, he died. He was 57 years old.

Serial numbers observed or reported range from under 100 to something over 1000. Probably over a thousand, but less than two thousand, specimens of the Model 6 were made. They are scarce pistols today.

At this point, we need to make a side trip, for events were taking place in Italy that require us to be specific about our field of interest.

In 1910, the Italian government had adopted the 9mm Glisenti semi-automatic pistol. The Glisenti was a weak locked-breech design that used a vertical swinging member below the bolt to prop the bolt closed for a short time. The cartridge was dimensionally identical to the 9mm Parabellum, but, because of the weak action, was loaded to a much lower power level. Cartridge collectors today generally refer to it as “9mm Glisenti.”

Once the cartridge was adopted, it was inevitable that other Italian designs chambered for it would appear.



**The Italian** Glisenti of 1910 used a cartridge dimensionally identical to the 9mm Parabellum, but loaded to a much lower power level.



**The Beretta** Model 1915 blowback pistol cannot be compared to other blowback nines because it was designed for the lower power level of the Glisenti cartridge.

In 1915, during World War I, about the same time as the Walther Model 6, the Beretta firm brought out the first in a line of blowback semi-automatic pistols. They included a chambering for the 9mm Glisenti. These pistols, along with later 1919 and 1923 variants, supplemented the Glisenti as Italian military pistols.

The lower power of the 9mm Glisenti cartridge made it easily adaptable to traditional blowback design. To make the story as complete as possible, the Beretta 9mm blowbacks must be mentioned, but they cannot be compared with the others, as they were never meant to be used with cartridges of the Luger power level.

Following Germany's defeat in World War I, manufacture of military pistols in that country was restricted. Walther introduced the Models 7, 8 and 9 as constantly improving pocket pistols. And in 1929, the firm introduced its famous 32-caliber Model PP (Polizei Pistole). Still a blowback pistol, the PP introduced the double-action trigger mechanism to the Walther line and ended the system of designating pistol models by number. The new PP was immediately popular, and in 1931 a smaller version, the PPK, came out.



By the early 1930s, Germany had begun to rearm in violation of the Versailles Treaty. A standard 9mm military pistol was wanted to replace the difficult-to-manufacture Luger. Walther, having still made nothing but blowback pistols, drew on the experience of the firm's recent success. The experimental 9mm blowback pistols designed had the appearance of an enlarged PP, with a similar double-action trigger mechanism. Aware of the shortcomings of the Model 6, the company lengthened the barrel from 4¾ to 5 inches, allowing a longer spring and heavier slide. Total weight increased from 33 to 39 ounces.

The pistol — actually several different variations — was designated the Walther Model MP (Militär Pistole). The design still was not able to withstand the continued use of the 9mm Parabellum service ammunition.

Discouraged by the performance of their new blowback 9mm, Walther began development of a locked-breech pistol, retaining the double-action mechanism. This development led to the adoption by the German army, in 1938, of the now-famous Walther P-38. Only a small number of Model MP blowback 9mm pistols were made, and they are very scarce today.

While the Germans had produced several unsuccessful pistols in an attempt to field a blowback that would work well with the 9mm Parabellum cartridge, the Spanish did much better with another, slightly more powerful cartridge.

Spain had been the third nation in the world to adopt a semi-automatic pistol.

The Bergmann locked-breech pistol of 1903 had been chosen as the official sidearm. Caliber was 9mm Largo (9mm Bergmann-Bayard), a cartridge of the same diameter as the Luger round, but using a case four millimeters longer.

In 1921, a simpler pistol for the same cartridge was adopted. This was the Astra Model 400, designed by the Spanish firm of Esperanza y Unceta. The 400 was a blowback. Its long 6-inch barrel allowed a very long, very strong recoil spring — second only to that of the Dreyse in strength. It also had a slide of substantial weight and a concealed hammer which helped hold the slide forward during the time of highest pressure.

The Astra 400 worked well and was used through the Spanish Civil War. When German forces occupied France in 1940, they purchased about 6000 of the big Astras as substitute standard pistols. However, this gave some soldiers pistols chambered for a nonstandard cartridge.

Now, it has been said that the Astra 400 will function reliably with the shorter 9mm Parabellum cartridge. Without going into the differing opinions on this subject, it seems sufficient to say that the Germans did not find the practice satisfactory.



(Above) **An undetermined** number of Llama 9mm Parabellum pistols were made in blowback configuration.



(Left) **Most parts** for the Llama 9mm blowback are the same as those of the locked-breech version. The barrel has no locking notches and no link.

About 1942 or 1943, the Germans requested that the Astra design be revised, specifically to use the 9mm Parabellum cartridge. The resulting pistol was called the Astra Model 600, although German records refer to it as the Model 600/43.

The redesigned 9mm Parabellum pistol was slightly smaller and lighter than the original 400. Its barrel length of 5¼ inches still allowed a long, strong recoil spring and a fairly heavy slide. The pistol worked well and was accepted by the German army. An acceptance stamp appears on some pistols; apparently the Germans trusted Astra workmanship and it has been reported that not all pistols accepted were stamped.

There were 10,450 reportedly delivered to German forces by late 1944. Then, after the Allied invasion of Europe, German occupation of the French-Spanish border area ended and the Germans retreated. An order of approximately 28,000 pistols was not delivered.

A basically good pistol chambered for an increasingly popular cartridge, the Astra 600 stayed in production through World War II and for a short

time beyond. A number were sold to the post-war German government for police use. Total number of pistols made was 59,400.

World War II was also responsible for another blowback 9mm Parabellum design. The little-known Tarn pistol was designed by a Polish exile. Development work was carried out at the Swift Rifle Company in London, reportedly by Free Polish engineers eager to provide arms for a possible reoccupation of Poland. The Tarn used a slide of substantial weight and a strong recoil spring around its fairly long barrel to control the 9mm cartridge.

Several specimens were tested by the British in 1945, with negative results. The pistols were found to be poorly made, the recoil was said to be violent, and it was difficult for the test personnel to pull the slide back.

Only nine Tarn pistols were made, all experimental prototypes with varying features. After the war, the pistols were acquired by an American importer and sold to collectors.

The years after the war saw new military interest in lighter firearms. The U.S. Army drew up requirements for new weapons, including a new lightweight pistol. For the first time, the 9mm Parabellum cartridge was seriously considered.

A series of tests was begun in 1948. Evaluated against the standard 45-caliber pistol were four 9mm entries. Colt produced a shortened 9mm Government Model that later became the Commander. Smith & Wesson offered a new 9mm pistol which became their Model 39. From Canada came the lightweight Inglis, a version of the Browning Hi-Power with an aluminum frame. The final 9mm entry was a new concept — the blowback T3.



**Walther Model 6** eventually pooped out, but was still carried by some German officers in WWI.



**Disassembly** of the Walther Model 6 shows the strong recoil spring used. Inertia of the slide and the act of cocking the hammer also helped delay opening of the action.

The T3 was developed by High Standard Manufacturing Company under a contract with the U.S. Army. It was the first attempt to specifically adapt the 9mm Parabellum cartridge to a short, light pistol of blowback design.

The T3 had a heavy spring around the barrel and an external hammer, both of which aided control of the initial pressure of firing. However, results with the light pistol were not promising until a new chamber design was tried.



**Collectors** may cringe, but the writer fired a Walther Model 6 in 1987, with reduced hand-loads.

An annular cut was made around the circumference of the chamber. On firing, the cartridge case expanded into this cut; the force required to reduce the case back to original size retarded the rearward movement of the slide during the period of highest pressure. This novel method of adapting the 9mm Parabellum round to the blowback design showed considerable potential. The T3, however, did not do particularly well in the tests.

About 1955, the decision was made to retain the 1911A1 45-caliber pistol in service. Work on the T3 was stopped.

It is uncertain just how many T3 pistols were made. All the pistols apparently differed somewhat from each other. Some variations that were

begun were never completed. Estimates of finished pistols range from less than a dozen to about two dozen.

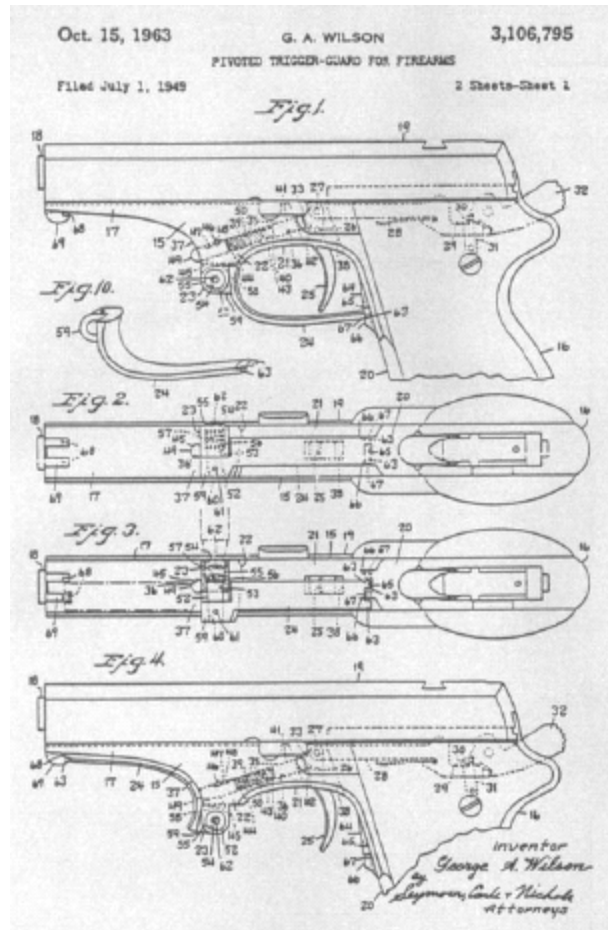
Although the T3 project was not successful, the American shooter derived benefits from the test program in the forms of the Colt Commander and the Smith & Wesson Model 39. These two American pistols, along with the large numbers of World War II souvenir pistols, introduced American shooters to the 9mm. Thus began the popularity of that caliber in the United States.

During the 1950s and 1960s, with western nations updating their arsenals, other 9mm pistols and huge volumes of surplus ammunition came on the market. Surplus ammunition selling at a few cents per round made it desirable to own a 9mm pistol, even if that caliber were not a shooter's first choice. During this post-war period, there was a demand for newly made pistols as well as for the low-priced but serviceable surplus arms. Three new blowback nines were introduced.

One of the new designs, which never really reached the production stage, was the Bernardelli.

The Bernardelli firm of Gardone, Italy, had been in the firearms business since 1865. Their first semi-automatic pistol was a simple but well-made vest-pocket 25. It appeared at the end of the war, in 1945. By the end of the decade, the company had expanded its line to include larger pistols of 22-, 32- and 380-caliber, all of the same basic blowback design.

Observing the popularity of the 9mm Parabellum cartridge, company officials began a project in the 1950s to see if the Bernardelli design could handle the larger cartridge. The resulting 9mm Parabellum pistols were enlarged versions of the basic blowback mechanism. They featured a strong recoil spring around the 315/16-inch barrel, a moderately heavy (11-ounce) slide and an outside hammer with a noticeably stiff mainspring. Buffers on the frame beneath the barrel cushioned the slide at its rearward travel.



These features were not enough. Performance with the full-power cartridge was not satisfactory. Only a small number of the pistols were made, and they are very rare today. The total number produced (which includes several variations, including striker-fired versions) has been estimated at less than 100.

A second design introduced during the 1950s was the Astra Model 800 "Condor." The Spanish manufacturer, by then doing business as Unceta y Cia., sought to capitalize on the good reputation of the Astra Model 600. The wartime Model 600 was redesigned and the resulting pistol was introduced in 1958.

The Model 800 retained the tubular appearance and stiff springs of the wartime pistol, but featured an exposed hammer and a slide with a shorter rear portion. The redesigned frame did away with the grip safety and positioned the thumb safety at the rear, behind the left grip.

Although it apparently enjoyed some success in Europe, the Condor pistol never appeared in America in any great quantity. It is reported that a

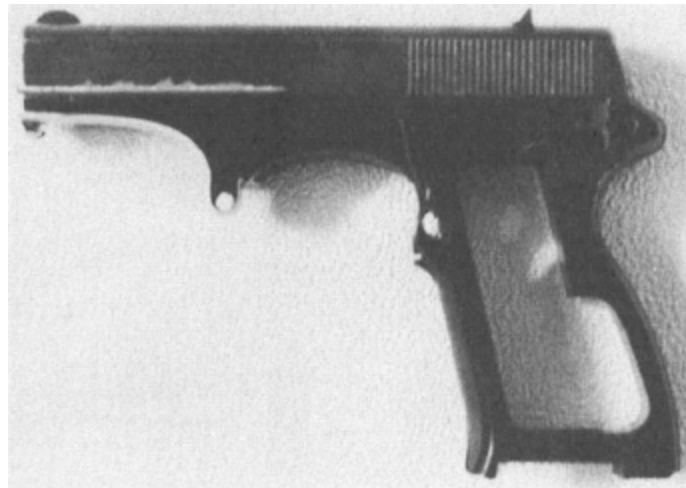


total of slightly more than 11,400 were made before production ended about a decade later, in 1968.

A third 9mm Parabellum blowback design of the '50s was the MAB Model R.

The French firm, Manufacture d'Arms Automatique, of Bayonne, had made 32-caliber pocket pistols from 1933 until 1940. After the occupation, many thousands were made for the Germans during World War II.

In the post-war years, the company expanded its line of small- and mediumsize pistols. Included were guns of 22, 32 and 380 calibers. During the mid-1950s, the basic blowback design was modified in an attempt to offer a 9mm Parabellum pistol.



**After WWII**, the U.S. Army tested a blowback 9mm pistol, the T3. This is an experimental double-column magazine version that was never finished.

The design was innovative. As might be expected, the overall size was enlarged, and a strong spring and fairly heavy (12-ounce) slide were used. An outside hammer was utilized.

The really novel feature, however, was the barrel mounting. Instead of being fixed to the frame, the barrel was allowed some forward-backward movement. With the slide back, the barrel was pushed to its rearward position by a small coil spring.

With the action closed, the slide, under the influence of the strong recoil spring, pushes the barrel to its forward position. On firing, the barrel (under rearward pressure from its small spring) tends to move back as the slide moves back. MAB engineers apparently hoped this feature would provide at

least some of the benefits of a locked-breech system, in which the barrel and slide move back locked together.

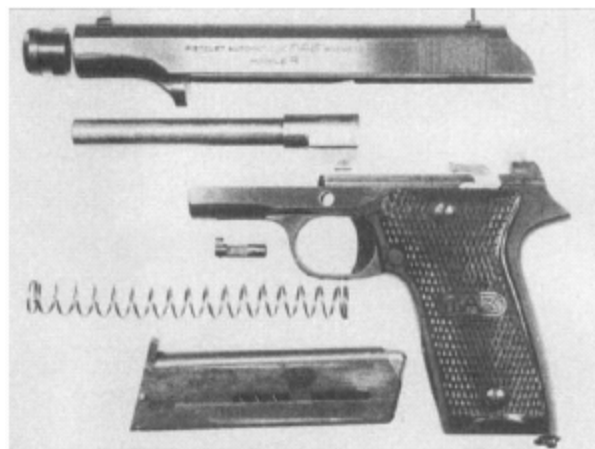
The 9mm pistol had a 4¾-inch barrel and weighed about 36 ounces. It was marketed in the United States by Winfield Arms Company of Los Angeles as “Le Militaire.” A related company, Western Arms Company, also handled the MAB pistols. To the right-side slide legend of “MADE IN FRANCE” was added an additional stamping, “FOR W A.C.”



**MAB Model R**, right view, shows addition of “FOR W.A.C.” to the original legend. Model R was made in the late ‘50s to early ‘60s.



**In 1943**, a redesigned Astra pistol, the Model 600, was produced in caliber 9mm Parabellum for the German army.



**The barrel** of the Model R could move rearward under spring pressure for a short distance, as the slide began to move. The design concept seemed to allow the barrel and slide to move back together, thus gaining some of the benefit of a locked-breech system. The actual effect may be different.



**The Astra** Model 600 has a very heavy recoil spring. The combined 13-ounce slide and muzzle-cap weight and the energy used to cock the hammer also help control opening of the action.

The Model R did not sell well. It was introduced in the late '50s and by the early '60s was no longer offered. The pistol is illustrated only for years 1958 through 1963 in the Gun Digest catalog sections.

The price remained stable at \$62 throughout this period. However, during this time a brand-new commercial Browning Hi-Power (in the same caliber) retailed for \$74.50. The lower price was not enough to spur sales of the French pistol.

A demonstration of the Model R does not create a positive impression. There is no manual slide release or manual slide lock. Both these functions are controlled by the magazine. The strange mechanics of the design thus required a good magazine.

after firing, the slide locks open against the magazine follower. When the magazine is withdrawn (with some difficulty, as it is held by the slide under strong spring pressure) an auxiliary lock moves up to retain the slide open.

Inserting a loaded magazine releases this lock, automatically running the slide forward to chamber a round. Inserting an empty magazine will (usually) release the slide a split second before the follower catches it again. Lacking a good magazine, there is virtually no way to release the slide without a partial disassembly of the pistol

These factors, along with the awkward stretch to the thumb safety and the high, sharp sights, probably were enough to dampen most shooters' enthusiasm for the pistol.

Serial numbers of observed specimens range from those in the 200 series to the 1100 series. Experimental turning-barrel locked-breech designs (also, for some reason, designated as Model R) have been reported in the 1500 series. It would seem that the total production of these blowbacks may be somewhere around 1200 to 1400 pieces.



**The rare** Bernardelli 9mm Parabellum (9mm Luger) pistol is seldom seen. It was made for a short time during the 1950s.



**The short barrel** of the Bernardelli limited the size of recoil spring that could be used. Recoil buffer can be seen just below the barrel.



**The Astra** Model 800 Condor was a modification of the WWII Model 600. This specimen was formerly in the Sidney Aberman collection.



**A strong** recoil spring is used in the Astra Condor, but the slide is shorter and 1½ ounces lighter than that of the Model 600.

The unusual system of having the barrel follow the slide back without a positive lock was not unique to the French pistol. During 1955–1957, the J. Kimball Arms Company of Detroit, Michigan, made a pistol for the U.S. 30 Carbine cartridge. The barrel also moved back with the slide without a mechanical lock.

However, the Kimball had longitudinal grooves or flutes cut into the chamber. The concept seemed to be that the cartridge case would expand into these grooves and be held to the barrel by friction while being held to

the slide by the extractor. The barrel and slide would move rearward together, delaying the blowback action.

It is well known that the Kimball system did not work as planned. A number of guns were damaged by the dangerous recoil, and the company failed within two years.

What is not so well known is that Kimball made a single prototype pistol to test the system in 9mm Para-bellum caliber. The writer examined it a number of years ago, but its location is unknown to me now.

During the late 1960s, the German firm of Heckler & Koch engaged in development of a military firearm that could function as both a pistol and sub-machine gun. The caliber, naturally, was to be 9mm Parabellum.

Announced about 1970, the VP70 was a large blowback double-action-only pistol. It could be fitted with a shoulder stock. With the stock detached, it was a semi-automatic pistol; with the stock attached, it was capable of three-shot burst fire.

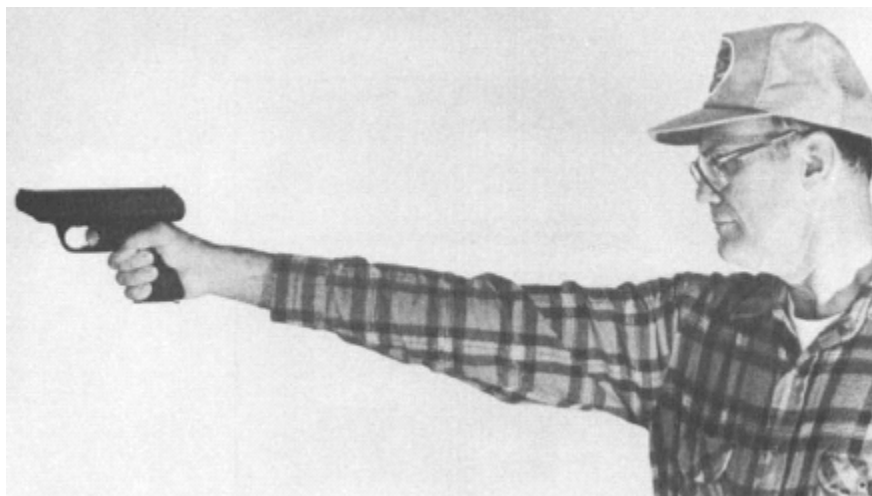
A modified version, the VP70Z, could be used only as a semi-automatic pistol. This version was marketed in the United States, beginning in about 1973 or 1974.



**The Heckler & Koch VP70Z** was introduced into the U.S. in the early 1970s.



**Primary control** of recoil in the VP70Z is accomplished by the staff recoil spring and a 14.5-ounce slide that accounts for 43 percent of the total weight of the pistol



**Robert Malloy** demonstrates that the VP70Z is suitable for a traditional one-hand hold. The double-action-only trigger was ahead of its time, and felt recoil is mild.

Here we must make another side trip to define the scope of our interest in blowback nines. Other 9mm semiautomatic pistols based on blowback sub-machine-gun origins have been made and are being made. The Uzi, Wilkinson, Sterling and MAC designs are only a few. They are pistols in the legal sense, but do not lend themselves to natural one-hand use or traditional holster carry. Although they are fun to shoot and useful for special purposes, they will not be considered here.



The VP70Z, however, is a pistol by almost anyone's definition. Although large and bulky, it is suited to traditional one-hand shooting and holster carry.

The total weight is only about 33 ounces, but 43 percent of that weight is in the slide. It has a very heavy 14.5-ounce slide and a strong recoil spring. The final rearward motion of the slide is stopped against an insert in the take-down latch.

The VP70Z was comfortable to shoot and held 18 rounds. Still, it was not particularly popular. It was expensive, and for the money a shooter got a well-built, but ungainly and clumsy-looking, pistol with a long trigger pull for each shot. So the VP70Z was dropped from production about 1984.

The Spanish firm of Gabilondo, manufacturers of the Llama line, made a 9mm Parabellum blowback pistol during the 1980s.

The reason for this is unclear. Gabilondo had been making locked-breech pistols of the Colt 1911 design under the Llama name since 1931. Llama locked-breech pistols in 9mm Parabellum caliber had been imported into the United States by Stoeger since about 1952.

With the manufacturing experiences and the machinery already in place, there would seem to be little advantage in switching to a blowback design, since most of the parts of the blowback 9mm are essentially the same as those of its locked-breech brethren. The barrel, however, simply remains stationary in the frame. It does not tip up at the rear to lock into the slide and, indeed, had no locking notches or link. The standard under-barrel recoil spring arrangement of the locked-breech design was used.

While it apparently eliminated some machine work during manufacture, the blowback Llama 9mm was not a success. After a number had been produced, a product advisory was issued, and the blowback pistols were recalled.

Up until the 1980s, all blowback nines reaching the production stage had been full-size military-style pistols. The experimental T3 and the essentially experimental Bernardelli had been unsuccessful attempts to scale down the size.



**The Detonics** Pocket 9 was the first small blowback pistol to successfully handle the 9mm Parabellum cartridge.



**The short barrel** allows only a relatively short recoil spring in the Pocket 9. Early models used annular grooves in the chambers to delay the slide opening.

By the mid-1980s, in spite of cautions from some circles, the 9mm Parabellum cartridge was widely accepted in the United States for police use and personal defense. The niche for a compact 9mm was recognized. Such a pistol would be more easily concealed and could serve as a same-caliber back-up for police officers who carried a nine as a duty pistol.

Two compact blowback designs appeared, the first of which was the Detonics Pocket 9.

Detonics Firearms Industries began in 1976 in Bellevue, Washington. Gradually, the firm became well known for its compact 45-caliber pistol. That pistol was a small locked-breech design based on a modification of the Colt 1911 system.

Detonics had made a few 9mm specimens of its standard compact locked-breech pistol. However, the 9mm was the same size as the 45 and offered few advantages.

A different prototype 9mm Parabellum pistol had been displayed at firearms industry gatherings for several years. In 1985, it was put into production as the Detonics Pocket 9.

A totally new pistol, the Pocket 9 was a blowback. It was made of stainless steel and featured a double-action trigger, ambidextrous safety and recessed sights.



**The writer** finds that the Pocket 9 works well, but can be a punishing pistol to shoot for an extended period.

Its short 3-inch barrel did not allow a very heavy slide (only 10.5 ounces) or a very long recoil spring. To control the opening of the action, the Detonics “Chamber-Lok” breech system was used.

A 1984 discussion between the writer and a Detonics representative (prior to the marketing of the Pocket 9) revealed that annular grooves were

cut into the chamber walls. The case expanded into these grooves. Moving the case out of the chamber required a slight resizing, which delayed the slide opening. This is essentially the same method employed by High Standard during the development work on the T3.

For some reason, Detonics discontinued the “Chamber-Lok” annular grooves during the production of the Pocket 9. A pistol observed in the P2300 serial range has the grooves. One in the P3800 range does not.

Production of the Pocket 9 was short-lived — 1986, its second year of production, was also its last.

It is interesting to look at the 1986 Detonics price list. The standard version of the Pocket 9 is there, but two other versions are also listed. The Power 9 is the same pistol with a polished finish. The Pocket 9 LS is a “long-slide” variant with a 4-inch barrel. I have never seen either.



**The barrel** of this early Pocket 9, in the P2300 serial range, shows annular grooving in the chamber.

About the time the Detonics Pocket 9 went out of production, its niche was filled by an Israeli import.

The Sardius SD 9, originally known as the Sirkis SD 9, was the design of Israeli engineer Nehemiah Sirkis. The new compact blowback was imported in small quantities about 1986. By 1987, the SD 9 was handled in the United States by the Maryland firm Armscorp of America and was advertised nationally.

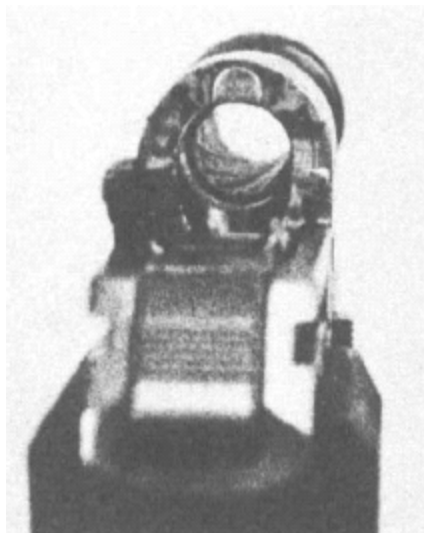
The Sardius is an interesting design. Made to be produced quickly and cheaply, a number of components are derived from heavy stampings. The

grips are wrap-around plastic. Obviously designed for close-range undercover use, the trigger is double-action only. However, a manual safety is provided.

The breechblock is a separate piece, but locks solidly into the slide. The short 3-inch barrel did not allow a long, heavy recoil spring, so a new system was used. Four coil springs of different outside diameters are positioned, one inside the other, to operate on the same axis rod below the barrel. The four springs are held captive on their rod and are easily removed as a unit for disassembly.

This combination of springs, resisting the movement of the 10.5-ounce slide/breechblock assembly, serves to delay the breech opening.

The first SD 9 pistols imported into the United States had some mechanical problems. Too, the crudely made European-style catch at the base of the magazine did not find favor with american shooters.



**The barrel** of this later Pocket 9, in the P3800 serial range, has a smooth, un-grooved chamber.

By 1989, a modified Sardius pistol had been introduced. The magazine release of the newer design was at the top of the left grip, where it could be operated by the shooter's right thumb. A trade-in policy was established. The owner of an early SD 9 could return it and step up to the later model for a small fee.

By early 1991, import and distribution of the Sardius SD 9 was being handled by the VWM company of Stafford, Virginia. At the time of this

writing, VWM is still distributing the pistol, and a company representative reports that it is popular with law enforcement officers as a back-up pistol.

As we have seen, for a long time — almost three-quarters of a century — all blowback nines produced had been full-size military-type pistols. Then, in the mid-1980s, compact pocket-size pistols in blowback form appeared.

By the end of that decade, a new type appeared with the introduction of the Maverick.

Although full-size, it had little in common with previous military pistols. Its intended niche seemed to be for personal use as an inexpensive home defense pistol.

In September 1987, the new Maverick blowback 9mm pistol was quietly introduced to the American market. The concept of Ohioan Ed Stallard, the new pistol combined some of the design features of early pocket pistols with a full-power cartridge and late 20th-century manufacturing techniques.

Ignoring current trends, the pistol has a single-action trigger mechanism, single-column magazine and thumb safety on the left only. The simple striker firing mechanism also uses the firing pin as an ejector. The design offers few surprises to those familiar with the blowback pocket automatics of many decades ago.

The construction of the pistol, though, is strictly modern. Plastics, easily cast alloys, steel stampings and unbreakable coil springs are used throughout. Roll pins instead of screws are used for assembly — the only screws are the grip screws. The grips themselves retain parts on the side of the frame.

The resulting pistol was made inexpensively and sold at a low price. It was heavy, with a squared-off, boxy shape and a wrinkle paint finish. By traditional standards, it was not particularly handsome, but it was the cheapest new pistol on the market chambered for the 9mm Parabellum cartridge.

Weight was the primary reason for the Maverick's easy handling of the 9mm cartridge. The original version was listed as 48 ounces (about as much as a Smith & Wesson 44 Magnum) and some specimens even ran a few ounces heavier. The 22-ounce slide is a large 43 percent of the total weight of the pistol. The inertia of the massive slide helps keep the case in the chamber longer, giving pressures a chance to drop.

Strangely, the recoil spring is not particularly heavy. Perhaps to make the pistol workable for women and the elderly, spring strength was kept

moderate, and prime emphasis was placed on weight.

However, some other subtle techniques were used to control pressures. The rifling is cut only about .002-inch deep, about half the standard practice. This lowers initial resistance to the bullet and helps keep chamber pressure down. In addition, the slide in battery is designed for “zero headspace,” allowing the cartridge no play between the chamber shoulder and the breech face. Looseness would have the effect, however slight, of letting the case “slam” back against the slide. Zero headspace allows only a “push” against the slide.



**The S&W SD 9** was introduced in the late 1980s. It is manufactured in Israel, and heavy stampings are used in its construction.



**SD 9 pistols** of current manufacture have the magazine release button at the upper part of the left grip.



**Although the grip** of the Sardius SD 9 has a good shape, the recoil is heavy and the pistol is not pleasant to shoot for an extended period of time.



**Slide opening** of the Sardius SD 9 is delayed by four coil springs of different diameters, which are held captive around a common rod.

As the new pistols began to sell, the “Maverick” name was called into question in 1988. Although it had been registered by Stallard in Ohio, “Maverick” was registered nationally by a Texas shotgun company. A friendly agreement was reached, and the name of the pistol was changed.

Renaming of the pistol was in keeping with the policy of keeping expenses down. The original pistols bore this legend on the slide:

MAVERICK  
FIREARMS



MODEL JS-9MM  
Mfg. By Stallard  
Arms Inc.  
Mansfield, Oh.

The same die for the legend was kept, but the top line was simply ground off, getting rid of “MAVERICK FIREARMS.” The pistol was known thereafter as the “Stallard.”

In early 1991, a new grip frame with a curved rear portion was offered, with contoured grips to match the frame shape. The new frames were made of a lighter alloy. The total weight of the pistol went down to about 39 ounces, close to the weight of a Colt 1911. The weight of the slide, relative to the other parts, thus went up.

The version introduced in mid-1991 does away with the wrinkle finish in favor of smooth black or nickel. With little fanfare, the Stallard seems to be finding a market as an acceptable 9mm pistol at a low price.

In any discussion of blowback nines, the question of recoil naturally arises. How much do they kick? What is the recoil really like?

First, a clarification: Any cartridge has a certain recoil energy potential, and this is independent of what kind of arm fires it.

What we are really concerned with is “felt” recoil — the recoil sensed as shock to the shooter’s hand. This is influenced, for all pistols, by their weight and the shape of the grips. For semiautomatic pistols, we must add the effects of how rapidly the slide moves back and how abruptly it stops at the end of its travel. We have seen that different designs have addressed these effects in different ways.



**The Stallard JS-9MM** pistol was originally introduced in the late 1980s as the “Maverick.” Its boxy shape and wrinkle finish gave it a distinctive appearance.



**Using a relatively** light recoil spring, the JS-9MM pistol depends primarily on massive slide weight to delay opening.

Second, a consideration: Shooting any firearm should be safe — for both the shooter and the firearm.

A shooter of a gun of historical or mechanical interest is a custodian of a bit of history. He should be certain of the firearm's condition and use only suitable ammunition. For some of the blowback nines, original ammunition is not suitable ammunition.

With these points in mind, let me share a few thoughts:

Your writer has never seen a Dreyse 9mm. In view of the rarity of the pistol and the warnings oft en repeated in old texts, it would probably be best not to shoot one, even with reduced loads.

The Walther Model 6 is also a scarce item. It is so nicely made, however, that I can well understand a desire to shoot one. Collectors may cringe, but in 1987, my brother, Robert Malloy, and I had the chance to shoot a Model 6. Only light handloads were used. As might be expected, it performed flawlessly. Felt recoil with the reduced loads was moderate. We suspected, though, that full-power 9mm loads might have been hard on both the shooter and the pistol. Parts for these pistols are not available. Think carefully before shooting one.

The Walther MP blowbacks are rare, indeed. I have never seen one, and apparently the few existing specimens are in museums or private collections. One would expect traditional Walther quality and shooting characteristics somewhat better than those of the Model 6. I would love to try one out, but only with reduced loads.

Shooting the Astra 600 is a different story. Due to the heavy spring, heavy slide and hammer-cocking leverage, the rugged Spanish pistols seem to digest any 9mm Parabellum loads without ill effect. The felt recoil is moderate.

A characteristic of the Astra Model 600 seems to be good accuracy. Although the sights are not adjustable, all the 600s I have shot will shoot good groups, close to the aiming point. I have carried mine in the field. For small game and furbearers up to about raccoon or nutria size, it can be very effective.

The same, in general, can be said about the Astra Condor. Accuracy and effectiveness are essentially the same. For field use, the outside hammer can be an advantage. Strangely, though, although it is oft en considered an improvement of the basic 600 design, the Model 800 Condor is much harder to control during recoil.

A close look at the pistol tells us why. In order to adapt an outside hammer, the rear of the slide was shortened. The slide of the original 600 weighs 13 ounces; that of the 800 only 10.5 ounces. The lighter slide comes back faster and stops harder. In addition, with the hammer and thumb safety moved rearward, the rear frame configuration is different. The web of the hand rides awkwardly low on the grip, making muzzle rise difficult to control.

In 1984, I spent some shooting-range time with a Condor. Accuracy was excellent. However, my notes show recoil as “heavy.” Cases were ejected 20–25 feet to the right. Shooting with one hand, the muzzle jump was sometimes bad enough that the thumb tended to push the safety “on” during recoil. Although a good-shooting pistol, the Astra 800 Condor does not offer the control of the 9mm round that its predecessor did.

The Tarn pistol was dropped from consideration by the British due to its “very violent” action. This would indicate that the power level of the military 9mm load was too much for this design to handle. With only nine experimental pieces reported made, the rare Tarn should not be considered a shooter.

The High Standard T3 was made in prototype form only, with almost every specimen slightly different from the others.

Contemporary reports indicated a substantial reduction of felt recoil using the grooved chamber over the plain chamber. Apparently the system was not without problems, however, and final military specifications pointedly required a plain chamber.

About 20 years ago, I had the opportunity of handling what was probably the first working model of the T3. It was then owned by automatic pistol collector Harry F. Klein. It felt good in the hand, and I wondered what it would be like to shoot. The T3 pistols are all historically significant, and their shooting characteristics have been documented. There is hardly any reason that one should be shot now. Still, it certainly would be interesting.



**Late-production** Stallard pistols, beginning in 1991, featured a lighter frame with a curved rear strap, contoured grips and other refinements.

The 9mm Kimball is a one-of-a-kind prototype. I examined it some time ago when it was also owned by Klein. While it would probably perform better than the 30 Carbine Kimballs, its present owner should cherish it as a collection piece only.

The Bernardelli 9mm Parabellum is a rare pistol, and few would get a chance to shoot one. I was fortunate that one was in the possession of my brother, Robert Malloy in 1987.<sup>1</sup> I shot the pistol only with light handloads. The large frame offered a good grip, but recoil was heavy, even with the reduced loads. Any positive effect of the recoil buffers must have been slight. I wondered then, since Bernardelli had enlarged the frame beyond pocket pistol size, why they had not made a version with a longer barrel. This would have allowed a heavier slide and stronger spring.

The MAB Model R is a strange pistol. For shooting, the unusual mechanism makes it very difficult to clear a malfunction if one does occur.

Recoil has been described by another shooter as “stiff.” I have fired three of these pistols and feel that perhaps that term is not strong enough. Cases go at high speed 20 to 30 feet to the right. My notes indicate that the recoil seems to increase as you shoot; this may just be subjective, though.

Certainly, the pistol kicks fiercely with full loads. It is not pleasant to shoot, even with reduced loads.

The Model R's rearward-moving barrel has no positive effect that I could note. Indeed, a suspicion has been growing in my mind that the spring-loaded barrel, contrary to its intended function, may actually give the slide an additional rear-ward push at the beginning of its cycle.

The Heckler & Koch VP70Z is another strange pistol, but primarily because of its bulk and double-action-only trigger mechanism. As a shooter, it is controllable and actually fun to shoot. The heavy 14.5-ounce slide and strong spring seem to effectively tame the recoil of any standard 9mm loading. A friend of mine described his as a "pussycat."

I have never fired one of the blow-back Llama 9mm pistols, but I have examined a specimen. Like the other 1991-styled Llamas, the parts are big and substantial looking. The Louisiana shooter who owns it also has a standard locked-breech Llama 9mm. He could remember little difference between firing the two guns. However, remember that a recall notice was issued on the blowback version. If fired, it should be with mild loads only.

The small Detonics Pocket 9 looks as if it would be brutal to shoot, and most shooters feel it lives up to that appearance. The word most commonly used to describe the recoil is "sharp." Your writer agrees. The pistol I fired (one of the later un-grooved-chamber versions) delivers a hard, sharp blow to the hand with each shot. No one who tried it wanted to shoot it for long. However, the pistol itself does not seem to be affected by the recoil. As a police backup or a personal protection arm, it would be fired very little. For its intended purpose, the heavy recoil is acceptable.



**The grip** of the later Stallard pistols is comfortable for extended shooting sessions.

It is possible that the earlier grooved-chamber version would be gentler to shoot. Still, its small size and relatively light weight suggest it would not be pleasant.

Although one owner described the recoil of his Sardius SD 9 as “more like a 44 Magnum,” I experienced slightly less felt recoil shooting one than when shooting the Pocket 9. Because the total weight and slide weight of both pistols are almost identical, it may be that the four springs of the Sardius really do make a difference. Or it may be that the larger grip, of different shape, allows a better grasp to help keep the pistol under control.

This is not to say that shooting the SD 9 is pleasant. It is decidedly unpleasant to shoot for any length of time. Again, though, designed for undercover use, it would not be fired much, and the recoil would not be noticed in an emergency situation.

If one’s only introduction to blow-back nines had been the compact ones just described, trying out the Maverick or Stallard pistols would open a new world.

The tremendous weight of the original pistol just soaks up 9mm recoil. With the recent lighter version, the weight has been principally removed from the frame, not the slide. This means that the weight of the slide has

actually increased — relatively — to a full 50 percent of the total weight of the pistol.

With either version, felt recoil is moderate. A variety of commercial loads, military ammunition and hand-loads were tried, and all were pleasant to shoot. Cases, depending on load, landed 5 to 10 feet away. My 13-year-old son, Patrick, oft en assists me in trying things out. He considers the Stallard fun to shoot.

The story of blowback nine pistols is an interesting one. Designed specifically for a strong locked-breech action, the 9mm Parabellum cartridge had held an appeal for manufacturers in many countries who have tried to adapt it to the simpler blowback design.

Heavy recoil springs, multiple springs, hammer-cocking leverage, recoil buffers, grooved chambers, fluted chambers, shallow rifling, zero head-space, spring-loaded barrels and heavy slide weight — all these things have been tried. Various combinations of these factors have been used with different pistols.

Some have worked better than others. Some blowback nines had extremely short production runs. Some were essentially experimental, with only one or a few pieces made. Others achieved relatively large-scale production, with thousands or tens of thousands of pistols made.

Through it all, the unlikely combination of the 9mm Parabellum cartridge and the blowback design has endured for over eight decades. Blowback nines may well be with us for some time to come.

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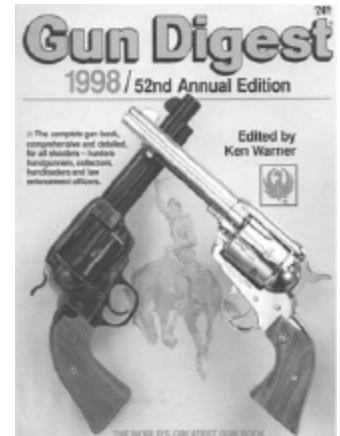
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Special thanks to Robert Malloy, Harry F Klein, Robert W Schumacher and the other shooters and collectors who shared their experiences and made their pistols available to the writer.

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1998



## 38 Snubbie or a 9

In defensive guns there's a choice of two! ■ Ralph Mroz

**A**N AWFUL LOT of trees die each year to provide paper for the never-ending attempt to educate the buying (emphasis on buying) public about their choices in handguns. This is because there are a lot of handgun manufacturers who each make a lot of guns, so there is a lot of stuff to write about. I do some of that writing myself. It goes: "The new Splatmatic from the former Soviet Republic of Elbonia is really a nifty piece of defensive gear," and "Here's a new gun made entirely of recycled cardboard from Florida," and "Mary Gunsmith in Rugged, Montana, does things to a gun that you just have to see to believe."

I'm sure you know what I'm talking about.

I used to believe it was imperative for anyone considering a defensive handgun to carefully consider all of the choices available.

"What gun do you recommend for self-defense?" I have been asked many times.

My standard reply was, "That's like asking me what kind of woman (or man) you should marry. It's very individual. You have to consider your

lifestyle; the kind of attack you are likely to encounter; your dress habits; the acceptance of guns in the company you keep; your physique; how important absolute concealment is to you; whether you have kids or not; and so on.

“After all,” I’d say, “a suburban professional male might reasonably expect that his most likely assault would come in the form of random street violence from one or two perpetrators. He can get by with a low-capacity gun, and if he’s average size or larger, then concealment isn’t a problem. A petite woman who owns a restaurant, however, might have to be prepared for a planned home invasion by gang members intent on stealing the night’s cash receipts. She’ll need a high-capacity firearm, and she will have a concealment problem.”

And I’d go on, talking about how the factors mentioned above all influence the kind and particular model of gun that you should buy. “Take your time,” I’d say. “Evaluate all these factors and make a logical, reasoned decision.”



**The snubbie 38** is the only answer in a revolver, the writer feels.

That is good advice, and I still recommend that people do that. It helps them plan for the kind of defensive scenario they may someday encounter. But the problem is that those chains of reasoning all lead to only two

handguns: The right gun is always either a J-frame snubnosed 38 Special revolver or a high-capacity 9mm pistol.

Now I'd better do some explaining. First off, I'm talking only about defensive handguns. Not long guns. Not competitive guns. Not hunting guns. Not offensive guns. Not duty guns. And, by corollary, I'm talking about a gun that must be carried concealed.

"How do you get to this zany conclusion?" you ask.

Well, since we're talking only about defensive guns, we can immediately rule out all single-action guns. Byebye to the 1911 and all its clones. Yes, I know that the 1911 is the best gun-fighting pistol in the world. I love 'em. If I were a CIA operative in Central America, I'd pack one. But I live in America, and when I shoot someone, I can't just smoke a cigar and burn rubber down the road. I will be responding to threats on my (or my family's) life, not participating in an act of war. I need to have the legal requirements of ability (my assailant had the ability to kill or cripple me), opportunity (he had the opportunity to do so), and jeopardy (he actually placed my life in imminent jeopardy) fulfilled, and I will face the possibility of criminal and civil charges.

As many more accomplished writers have pointed out at length, a defensive gun is a threat management tool, not an offensive weapon. The SA 1911 does indeed deliver the fastest and most accurate first shot, but the extra time needed for a DA first shot is hardly measurable in a real encounter. A criminally negligent accidental discharge from a cocked pistol with a 3-pound trigger, however, is a real possibility in the super-charged atmosphere of a life-or-death encounter. Under those circumstances, you don't want to try holding an aggressor at gunpoint with your trusty Colt. If you have to shoot someone defensively, you want to make damned sure that you shoot him only deliberately, and you want a gun that you can't later be accused of firing wrongly because of a reckless "hair trigger." Yes, there are men and women out there so highly trained with an SA pistol that they are probably immune from these caveats. They know (with the humility that comes from competence) who they are. Chances are you aren't one of them.

IF I HAVE THE CHOICE OF SIXTEEN (PRE-BAN) 9MM ROUNDS OR TEN 45-CALIBER ROUNDS, I'LL GO FOR THE HIGHER CAPACITY EVERY TIME. WHEN YOU HAVE TO DEFEND AGAINST MULTIPLE OPPONENTS OR ATTACKERS WHO ARE PARTIALLY BEHIND

COVER, YOU WILL WANT AS MANY ROUNDS AVAILABLE AS POSSIBLE.

Moving on to caliber — that's easy, too. No one seriously recommends any caliber under 38 for defensive purposes. Some will make a stretch and include the 380, but a review of the available documented shootings with this round will change that opinion fast. It simply doesn't work very well. Yes, it's a gun, and it goes "Bang," but would you, literally, entrust your spouse's life to it?



**If the snubbie** doesn't suit, you have to go with a smallish 9mm.

Remember that all handgun rounds are anemic in terms of "stopping power." None of them has anywhere near the kind of record that you would, all else being equal, want to trust with your life. I mean, if you know you're going to be attacked today, you carry a shotgun or leave town, right? The only reason we carry handguns is because we don't know if today is the day we'll be assaulted, but we think it might be, and the considerations of our society disallow the toting of a shotgun everywhere. We carry handguns

because they are the most potent weapon we can conveniently carry, not because they're the weapon we really want when harm comes our way.

With in this context, 38s, particularly in +P, have a good reputation for incapacitating aggressors. There are lots of good 38 loads to choose from. The 9mm is an acceptable round, too, if you choose your loads carefully. There are some abysmal rounds in this caliber and some with a good record. The 40 (or 40 Smith & Wesson) round is almost a 9mm and less street-proven. There's just no reason (yet) to choose it over a 9mm. That is, the ballistic difference between a 40 and a 9mm is trivial compared to the difference that shot placement makes. If you like it, fine — choose a round that feeds reliably and no harm is done. For defensive purposes, I consider the 40 to be a minor variant of the 9mm.

The 45-caliber is certainly a good round, but all DA 45s are big guns — too big to conceal well (or at least comfortably) for most people. And again, the difference between 45 and 9mm ballistics is irrelevant to the difference that shot placement makes. Get the smaller gun and practice a lot with it — something you should do with any gun, anyway. Besides, if I have the choice of sixteen (pre-ban) 9mm rounds or ten 45-caliber rounds, I'll go for the higher capacity every time. This is not because I'm such an incredibly poor shot I have to "spray and pray." It's because I've role-played scenarios with paintball, and I can assure you that, when you have to defend against multiple opponents or attackers who are partially behind cover, you will want as many rounds available as possible.

Yes, if I can't hit a single assailant who's in the open at 5.3 feet with 2.6 rounds (or whatever this year's averages are), then I do have a marksmanship problem, not a capacity problem. But that's not what I said. So if you really love the 45 and you're able to conceal it in a DA pistol on your (presumably size large) frame, then hey, go for it!

So we are now reduced to a DA 38 revolver or a 9mm pistol. This is getting easier. If you go for the 38, you should choose a 2-inch aluminum J-frame revolver — that is, a Smith & Wesson 442. Why would you choose anything else? This gun is smaller, lighter and much more concealable than any other revolver in any useful caliber. It's accurate out to reasonable combat distances (up to 20 yards). It can't take a steady diet of +P loads, true, but there are some very nice standard 38 loads to choose from — Magsafe being perhaps the best choice. It offers only 2-inch ballistics, yes,

but if you intelligently choose your ammunition (see my comments about Magsafe ammo), you can compensate.

WHY WOULD YOU CHOOSE ANYTHING ELSE? THIS GUN IS SMALLER, LIGHTER AND MUCH MORE CONCEALABLE THAN ANY OTHER REVOLVER IN ANY USEFUL CALIBER.

You could go with a steel-frame small revolver, but there's no need to. You could choose another 2-inch revolver from Smith & Wesson or another manufacturer, but you wouldn't want to rely on it firing from within a pocket (whereas the 442 has an enclosed hammer). You could go to a longer barrel length (even J-frames are available with a 3-inch barrel), but you'd give up some concealability and certainly almost all pocket carryability. There's just no defensive reason to choose any other revolver.



**The 38 Special** cartridge is about optimum for the carry-every-day defensive round.

If you go with the 9mm, then nearly all of the high-capacity 9mm pistols from the major manufacturers are reliable, and most are close to the same size. Simply choose the smallest one that best suits your hand and personality. You old-fashioned guys will want one of the heavy all-steel jobs; you new-age types will go for the plastic; and those of you in between will probably opt for an alloy-frame gun.

So, as promised, here we are: The right gun is always either a J-frame snubnosed revolver or a high-capacity 9mm pistol!

Of course, everyone has their individual preferences in a gun. Some like tritium night sights (I think they're a must), and some don't (go figure.) Some people want their backstraps and/or frontstraps stippled (never checkered!), and some can do without. Men and women with small hands

will want shorter triggers and smaller grips. Some damned fools (like me) even like their triggers grooved (even on a revolver!). Some folks want their guns shiny (a liability-detering asset, I think), and some want them dark (for those clandestine assassinations, I can only assume.)

That's fine. All of those modifications and others are easily accomplished on a Smith & Wesson 442 or any of the high-quality 9mm pistols. Gunsmith Karl Sokol is particularly well known for his work on 442s and 9mms. These modifications and options are what allow only two guns to compose the entire practical universe of defensive guns.

And OK — other guns are alright, too, once the shooting starts. Larger revolvers are fine, if you want to carry the extra bulk. Larger caliber pistols are OK, too, as explained above. It's just that there are better reasons to make the 38 snubby (in a 442) or the wonder-nine your first choice.

Industry events of the last couple years have added some alternatives. Magsafe rounds, for example, and others have brought new levels of incapacitation potential to the tiny calibers, and they may prove to give the 22, 25, 32 and 380 acceptable effective power. As shootings with them accumulate, the record will tell. Also, the size of major-caliber pistols has come down, with the 45 AMT Back-Up being the most notable example. To the extent that this gun is reliable with your load of choice, it is a good first choice, too.

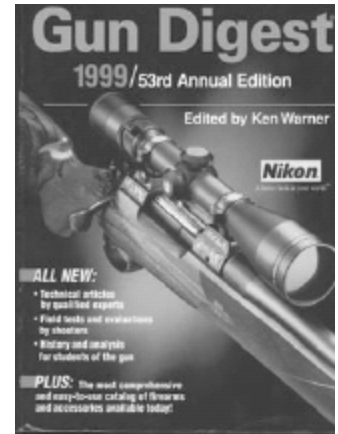


**The 9mm Luger** is the only other choice for defense, the writer believes.

However, the right first-choice defensive gun is always either a J-frame snubnosed revolver or a high-capacity 9mm pistol. No doubt about it!

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## Are 22 Pocket Pistols Practical?

■ Warren Peters

More than half of these United States now permit honest citizens to carry concealed weapons. With this privilege — which many of us think is a right — comes a need for discretion. Many people and some police take offense at behavior they perceive to be culturally incorrect. In winter, handguns of all sizes may be easily shielded from nervous eyes, but summer in the south and west challenges concealment. A couple strolling in a city in muscle shirts, walking shorts, and thongs must have pocket pistols if they are to be armed.

In that context, I visualize pocket pistols as barely, marginally, and readily concealable. These classes encompass many current and discontinued handgun models.

Barely concealable are snubnose 38 Special revolvers of the type made by Smith & Wesson, Rossi, and Taurus, and most 380 autoloading pistols.

Marginally concealable are the smaller 380s such as the Grendel and AMT Backup, and 22 autos of similar size. Some marginally concealable 22s are available in larger calibers.

Readily concealable are tiny 25 autos like the Baby Browning and its clones, plus a few 22 autos (some available in 25, even 32) and 22 revolvers of like size.

To compare all these, I have coined the term Bulk Factor, which is the product of a handgun's length, height, and width (to the nearest 1/10") and weight (to the nearest 1/2 oz, fully loaded). Weight is an important concealability element because of sag. The Bulk Factor of a number of pocket pistols appears in the included table. The boundaries between my concealability classes cannot be fixed rigidly because other factors apply, such as shape of the gun, its carrier's size, and garment fashions.



**FLT** (Old Model) Auto Nine: left thumb releases safety; fair shooter. John Malloy photo.

**Wilkinson** Sherry can disappear in your hand — has 138 bulk factor.

This report focuses on the marginally and readily concealable 22 autoloaders because of their surging popularity, in spite of their questionable defensive capability and functional reliability. I don't condemn the choice of others merely because I prefer something a little heavier. Practice is an essential factor in defense, and the 22 undeniably is the least expensive route to extensive shooting. All references herein to the 22 are directed to the 22 Long Rifle cartridge, unless otherwise indicated.

To get this going, I acquired one of each gun discussed below, along with assorted brands of 22 ammunition. Velocities spanned hyper, high, standard, some target and subsonic. The shooting was conducted over the course of more than a year. I broke in all new pistols with at least 100 rounds, mostly with high-velocity ammo. Then, unless otherwise noted, in each gun I fired four full magazines, plus a round in the chamber, of each ammo variety on hand. I stopped after two loadings if a particular ammo variety clearly wasn't working, and I formally tested the subsonic only in the smallest pistols, one load only. Initially I had an elaborate table to show each gun's performance with all loads, but this system broke down from sheer volume.

Few of the pistols worked reliably with hyper or standard ammo, and most expressed preferences among varieties of high-velocity ammo. Hyper velocities are achieved with a light bullet, subsonic 22s did not open slides enough to eject the hulls from any of the small pistols, which have relatively light slides and stiff recoil springs; one must suppose that the fabled assassins' silenced pistols are specifically regulated. Accuracy was not a performance criterion for those belly guns; however, they all did a heavy number on the seven-yard combat target, despite generally miserable sights. No key holing was observed at this short range, but from a few guns it did appear at 25 yards.

### **Barely Concealable Guns**

Barely concealable 22s available to me were the Smith & Wesson Model 2214 (short version of S&W's slabsided 22 auto), Smith & Wesson 61 (ancestor of the 2214), Llama XV (a miniature of Colt's 1911), AMT 22 Backup, and Heckler & Koch HK4.

All performed well with various high-velocity and standard-velocity loads. Because of their size and their availability (except for the Smiths) in 380 (Llama also in 32, and H&K in 32 and 25, as well as in 380), I did not break them in and test them as thoroughly as I did the smaller pistols. The 2214 was the only test pistol in this or any category that functioned well with hyper-velocity ammo. Others tended to smokestack with hyper, although the H&K did this only once. The 2214 ejected subsonic loads, but did not feed them satisfactorily; I did not try those loads in the others. If I had to settle for this size 22, then smooth performance, price and current availability would propel me toward the S&W 2214.

### **Marginally Concealable**

Marginally concealable pistols I tested were the Galesi 9, Walther TPH, Iver Johnson TP22 (some were sold under the “American” label), and the Phoenix HP22. All but Walther come in 25, as well.

The Galesi, no longer imported (a few came in 22 Long), exhibits the best quality, and mine has a good trigger. However, its magazine will not feed if loaded with more than five rounds (the bullets tip downwards), and its weak firing-pin spring occasionally fails to light the fire. All high-velocity rounds and two standard-velocity brands cycled perfectly when they did ignite.

The Walther TPH, basically a scaled-down PPK made in brilliant stainless steel by Inter-arms in the USA, was a \$325 disappointment. In addition to its difficult safety and mushy trigger, my TPH could not be persuaded to perform reliably with any ammo. An assortment of maladies, including feeding, extraction and ejection, defied analysis. This model was discontinued for a while and recently re-introduced; I’ve not tested a later sample. The European version is made with a duraluminum frame, which might drop it into the readily concealable category. I cannot comment on that version’s performance because it doesn’t meet BATF’s thoughtful import points minimum.

Iver Johnson, also a PPK copy (this one by Erma) has a fair single-action trigger pull, but double-action (first round) is gargantuan. However, my TP22 works well with all high-velocity ammo.

The Phoenix HP22, which like the TP22 sells for a bit over \$100, is a racy design with two (count ‘em-two!) safeties; one on the slide and one frame-mounted. This belt and suspenders arrangement prevents not only firing, but also slide retraction, cocking, and magazine removal. I had to use my bowscale to weigh its single-action trigger pull: 17 pounds! The Phoenix has a rear sight that is adjustable for windage only. During break-in, hardly any ammo worked, but afterwards my HP22 functioned perfectly even with target loads. Moral: don’t give up too quickly.

### **Readily Concealable**

Readily concealable 22 pistols tested were the Lorcin L22, Jennings J-22, Sterling 302, SEDCO SP-22 (all of which cost less than \$100), Beretta 21-A, Norton TP-70, FTL Auto Nine (old model), and Wilkinson Sherry (new model Auto Nine).



**Sterling 302:** easiest slide to jack, good shooter — bulk points up to 252.



**Jennings J-22:** crude finish but author's favorite autoloader. Bulk factor: 213



**Beretta 21 A:** legendary quality, disappointing performance. Bulk factor: 262



**Walther TPH:** stainless double-action; very expensive, disappointing. Bulk Factor: 270



**Galesi Mod. 9:** well-made, good performer, no longer imported. Bulk factor: 339

Lorcin may offer the cheapest 22 pistol, a totally pot-metal production. Compactness is compromised by a magazine extension I am tempted to grind off. Esthetics aside, the L22 flawlessly digested all high-velocity ammo offered it.

The Jennings has a gritty trigger and the least expensive appearance, with chrome mottling and alloy casting bubbles. It appears fragile, but no parts failed during the test. Despite this, my J-22 welcomed both high-velocity

and standard-velocity ammo. It has a thin, serrated sliding safety that is easier to manipulate than it appears to be.

Sterling is the sturdiest looking. Its trigger pull is aggravated by a sear angle that retracts the cocked striker an additional 1/16" before let-off. My 302, representing one-quarter of Sterling's blue/stainless 22/25 family, did well with most, but not all, high-velocity ammo.

The SEDCO, of neatly painted nonferrous alloy, is the sleekest of the lot, with smoothly beveled corners and edges. Unfortunately, I couldn't get any ammo to work reliably in my SP-22. Usually a fired case remained in the chamber, indicating a problem.

The American-made double-action Beretta 21-A is the single-action 22 Shot Minx/25 Jetfire on steroids. Available also in 32, it compares very well in apparent quality with its Italian cousins. I did not test an identical model made by Taurus. Trigger action in both double-action and single-action modes is smooth and light, although in double action it is difficult to keep the finger from rubbing on the bottom of the trigger guard. First round must be loaded in the tip-up barrel; attempts to jack a round into the chamber from the magazine resulted in unintentional field stripping. Sharp edges on the slide are guaranteed to lacerate the shooter's hand. My specific 21-A had major feeding problems not cured by a new magazine and feed-ramp recontouring, very disappointing for a \$150 gun.



**North American Arms:** author's best 22 choice. Bulk Factor very low: 37.

At this point I should say that all gun manufacturers appear anxious to help shooters keep their guns safe and reliable. Invariably, they will do whatever they can to correct a problem in a new gun, never at more expense to the owner than shipping the gun to the factory. You needn't go through a

dealer for this, by the way. The Norton TP-22 is one of the reincarnations of the Budischowsky, all of which now are discontinued \$200-plus collectors' items. Several pieces of mine broke during its test, prompting my gunsmith to comment, "It's not what it appears to be." One of the smallest 22s (also made in 25) and possessing all the bells and whistles of the double-action wonder nines, the attractive TP-22 might have been my top choice. Unhappily, mine would not extract some ammo brands at all, had numerous misfires, and was altogether unreliable.

The two Auto Nines are nothing alike, mechanically. The old model (FTL) was inspired by the striker-fired Baby Browning, with fine alloy frame, steel side, and twist-barrel takedown. Trigger pull originally was atrocious. Upon disassembly, the sear protrudes above the frame and the mating striker falls into your hand. A little honing on both surfaces produced an excellent pull. The FTL performed well with only two brands of high-velocity ammo. The new model (Wilkinson Sherry) is of similar quality and materials, but is a concealed hammer design that employs an entirely different pinned breechblock takedown, rather like that of the AMT Backup. With a much better trigger, the Sherry likewise performed well with only two ammo brands, but not the same brands as the FTL. Both guns are in the \$150 range.

### **Alternatives**

Double derringers were not considered because of their two-round limitation. Some 38 derringers are as light as their 22 counterparts because of their larger bores. The market offers a couple of relatively cheap four-shot derringers I felt were beyond the scope of this test.

The little five-shot North American Arms and similar Freedom Arms stainless revolvers offer, in my opinion, a reasonable alternative to the 22 pistol. Aside from limited capacity, the main drawback is the single-action-only firing mode. Fumble-cocking and relatively severe recoil through their tiny bird's-head grips hamper target recovery. On my North American Arms revolver, the cocked hammer's firing pin obscures the rudimentary sights. These revolvers also are available in 22 Short (why both er?) and 22 Magnum. The Magnum would appear to be the better choice, but its greater length and fierce recoil disqualify it for me.

The upside is that both derringer and revolvers are essentially 100% reliable with all 22 ammunition.



## Conclusions And Recommendations

Even large-caliber, centerfire auto-loading pistols are limited to a relatively narrow range of ammunition for reliable function. The variety of available 22 rimfire ammo is much broader than that. All 22 pistols, even large ones, tend to be ammo-sensitive, being regulated for either high-velocity or target ammo, seldom both. Small pistols are more finicky because of their smaller mass. Limp-wrist shooting may disable the best of them, because the frame is recoiling along with the slide, which then can't open correctly. It should be clear that price has nothing to do with performance. Generally, size is a better indicator of reliability.

A professional trigger job should be contemplated. This might cost half as much as the pistol did, but it could help achieve the multiple 22 hits that may be required, which is the main advantage of the auto-loading pistol. Make sure your pistol works when it is clean, because that's the way you probably will be carrying it. Check the bore occasionally for lint and other obstructions picked up from your pocket.

### **Author's Concealment Specs**

<b>Gun</b>	<b>Bulk Factor</b>
North American 22	37
Baby Browning 25	112
FTL Auto-Nine 22	126
Wilkinson Sherry 22	138
Sedco SP-22—22	181
Norton TP70—22	187
Beretta Minx 225	189
Jennings J-22—22	213
Sterling 302—22	252
Beretta 21—22	262
S&W 61—22	263
Walther TPH22—22	270
AMT Backup-380	285
Iver Johnson TP-22—22	316
Gaucha 9—22	339
Grevdel P-10-380	443
Lorcin L-22—22	445
Phoenix HP22—22	482
S&W 2214—22	648
Llama XV-22	825
S&W Chief's Special-38	8420



**Lorcin L22:** tiny safety, still easy to release. Author photo.



**High Standard DM-101 22 Magnum derringer:** double-action only. Very flat.

All owner's manuals recommend carrying the pistol with an empty chamber. However, jacking a round into the chamber is one of the most dependable ways to jam one of these little guns. Some of their safeties are very difficult to work, and even more difficult to trust. For liability reasons, I offer NO carry-mode recommendations.

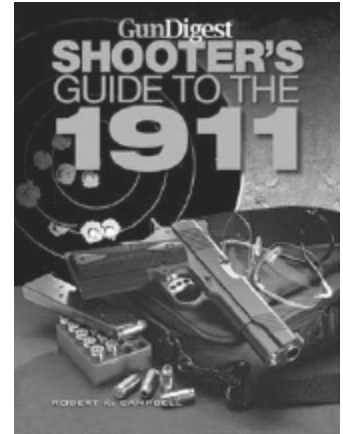
I cannot recommend any particular brand of gun or ammo, nor did I intend to do that when I undertook this project. Your gun, which may appear identical to mine, almost surely will behave differently. So what is the point of all this? It is to convince you that you must not buy one of these little guns, load it with something off your ammo shelf, drop it into your pocket, and feel protected.

Try out your gun like I did. Find a load that is reliable (hopefully a high-velocity hollow point) and buy a couple of bricks of it to practice with,

shoot them a lot, and then trust the gun. Of all the options there are in pocket pistols, this is the only one you must select.

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## SPECIAL EXCERPT



## Attention All 1911 Fans!

■ Robert K. Campbell

If you're a fan of the 1911 (and if you're reading this you probably are!), we invite you to check out *Shooter's Guide to the 1911* from Gun Digest Books. Whether you're a shooter, collector or historian, this entertaining book has everything you need to know about the most famous handgun in the world.

Written by renowned 1911 authority Robert K. Campbell, *Shooter's Guide to the 1911* is the definitive summary of John M. Browning's most famous creation. Of special interest to 1911 enthusiasts is Campbell's chapter on firing tests in which he puts 52 different handguns through their paces. The following excerpt covers several models from Springfield Armory. Enjoy!

**To get your copy of *Shooter's Guide to the 1911*, plus other notable volumes such as Patrick Sweeney's *1911: The First 100 Years* and the entire line of Gun Digest brand books, visit [www.gundigeststore.com](http://www.gundigeststore.com).**

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Springfield Ultra Compact 9mm

A 9mm 1911 – blasphemy! Just the same, the genre is quite popular and this is a great shooting little pistol. One advantage is that the pistol is capable of digesting great amounts of 9mm +P or +P+ ammunition without complaint. Due to the low bore axis and well designed beavertail grip safety, the pistol is comfortable to fire with practically any loading. The factory supplied Hogue grips are ideal for most uses, but would probably be changed in a dedicated defensive handgun. This is a handgun without issues. The compact size, Novak sights, good trigger compression and light recoil make it a joy to use and fire.

I try to be open to other cultures and maintain a cosmopolitan outlook. The 9mm Luger cartridge is very popular and the 9mm 1911 is a byproduct of commerce. Some favor the 9mm perhaps from a sense of romantic idealism while others look as if they have swallowed a lemon at the sight of a 9mm pistol. I will state the matter rather plainly. I have usually kept a Browning High Power 9mm or two around the house for various reasons. The Springfield 9mm is better suited to personal defense or recreational shooting due to the superior trigger compression and general fit. With Metalform magazines, the pistol offers 10 rounds. The Buffalo Bore loads in 9mm offers a degree of authority in a small bore cartridge. While I prefer a big bore, a 124-grain bullet at 1250 fps (1300 fps from a 5-inch gun) is nothing to sneeze at. Building a relationship with your pistol has much value in survival, and the Springfield 9mm is an easy pistol to get to know and a likeable one at that.



**The Springfield Ultra Compact** is a fine pistol if a 9mm is your cup of tea.

10-yard group  
 Fiocchi 124-grain XTP ..... 2.5 inches  
 25-yard group  
 Buffalo Bore 124-grain ..... 2.65 inches

### **Combat Course**

20 rounds Fiocchi 124-grain XTP  
 10 rounds Buffalo Bore 124-grain JHP  
 Rating .....10  
 Malfunctions ..... 0 (1500+ rounds)

### **Springfield Long Slide**

This is a friendly enough pistol, long, heavy and accurate. The long slide is simply a 1911 with a 6-inch barrel and slide. This extra inch considerably enhances the balance and handling of the 1911 when it comes to long range pursuits. If you have never handled a long slide 1911, you have really missed something. The long slide is not something you will wish to carry concealed but as a hunting pistol or home defense handgun it has much to recommend it. The pistol does not leap into your hands as a Commander pistol will but it offers a stable firing platform. I thought it odd that the pistol features a very good Springfield adjustable rear sight but the front sight is a simple staked-on post. It worked okay for most shooting chores, but I would have preferred a taller front sight.



**The Springfield Long Slide** may not be the most practical handgun but it is a very interesting 1911 variant.

The level of accuracy demonstrated by this pistol has been more or less in the high grade 1911 arena, nothing startling. However, on one occasion I fired the single best group I have ever fired in my life at long range with a 1911 pistol. On a lark I took aim at a 100 yard silhouette. I had had the long slide less than a week, and had fired fewer than 200 rounds in the piece. I was sighting in a .308 rifle at the time. I laid the Springfield across the shooting bench, took a solid rest, and fired three rounds. I have never been more relaxed as I was not firing for record. To top it off, the ammunition was Wolf 230-gr. ball. Wolf is reliable ammunition but not match-grade by any means. When I walked to the target, the three bullets had struck about twelve inches low and three to the right. They were in a pyramid pattern, with one at the top and the others forming almost a perfect base. The bullets measured less than four inches apart. I have never duplicated this group or even come close, but it happened. The Springfield long slide may not be the most practical .45 but it is an interesting piece.

10-yard group

Hornady 230-gr. XTP +P ..... 4.1 inches

25-yard group

Hornady 200-gr. XTP ..... 1.75 inches

### **Combat Course**

10 rounds Double Tap 200-grain JHP

10 rounds Wolf 230-gr. FMJ

10 rounds Winchester SXT

Rating .....8

Malfunctions .....0

Note: There is always interest in the approximate velocity gained with a 6-inch barrel. I carefully recorded the differences in velocity, using the 6-inch-barrel Springfield, a 5-inch-barrel Smith and Wesson SW 1911, and a 4.25-inch-barrel Smith and Wesson 1911PD. The results were interesting. It appears the Springfield long slide gets the last foot per second from a given loading.

Velocity Load	Springfield 6-Inch	SW1911 5-Inch	SW 1911PD 4.25-Inch
CorBon 165-gr. JHP	1309	1223	1112
Federal 185-gr. HS+P	1140	1101	1058
Double Tap 200-gr. JHP	1100	1054	1004
Wilson Combat 200-gr. JHP	925	–	875
Mastercast 200-gr. JHP	1020	948	908
Black Hills 230 gr. JHP	880	855	815
Winchester SXT +P	960	945	914

## Springfield GI Pistols

The Springfield GI was the original “Springer” and the one that changed the 1911 world. This is a no-frills GI pistol in appearance, but do not let its appearance fool you. The pistol has superior manufacturing beneath that plain vanilla exterior. The pistol will feed modern hollow point ammunition. The trigger action is often smooth and crisp. The firing pin is a lightweight type with a strong return spring for added safety. The pistol features the original GI slide window in deference to GI.45 fans. We tested both a plain working gun (a parkerized GI pistol) and a rather nice stainless steel Springfield GI pistol. The stainless GI pistol should be a good working pistol but we ran into a snag. The trigger action was heavier than the parkerized pistol, which we can live with, but the stainless pistol suffered several break-in malfunctions. That is okay, too, but we seldom see break-in malfunctions these days. Just the same, either is a good serviceable pistol well worth the price.

### *Parkerized Springfield*

Ten round group

Fiocchi 230-gr. FMJ ..... 4.75 inches

25-yard group

CorBon 185-grain JHP ..... 4.0 inches

### **Combat Course**

10 rounds Fiocchi 230-gr. JHP

10 rounds CorBon 200 grain JHP

10 rounds CorBon 185 grain JHP

Rating .....10

Malfunctions .....0

### *Stainless Steel GI pistol*

10-yard group



Black Hills 230-gr. RNL ..... 5.1 inches  
 25-yard group  
 Hornady 230-gr. XTP+P ..... 4.6 inches

**Combat Course**

Black Hills 230-gr. RNL  
 Hornady 230-gr. XTP  
 Hornady 185-grain XTP  
 Rating .....7  
 Malfunctions ..... 9 break-in malfunctions, all failures to  
 fully close the slide

**Springfield Champion**

The Champion is a 4-inch-barrel variant of the 1911, with a full length7-round grip frame. The barrel features the proven bull barrel lockup common to 1911 pistols with barrels shorter than 5 inches. This variant features Novak sights, a speed safety, and a well-designed beavertail grip safety. While the pistol proved quite reliable and never stuttered, there were a couple of disappointments. I attempted to carry the piece in a favored Sideguard holster in which other 4-inch variants had resided quite well. The over-large speed safety of the Champion tended to rub to the off position in the holster. This is the type of safety used on the long slide but not the same one used with the Loaded Model. A second complaint was that the pistol was not as accurate as we would have liked. Four-inch groups at 25 yards will save your life, but from Springfield a four-inch group is pedestrian. These complaints are as significant as you care to make them. The pistol is fast from the holster, controllable, and lifesavingly reliable.

10-yard group Magnus 200-gr.  
 SWC/Unique/780 fps ..... 3.5 inches  
 25-yard group  
 Federal 230-gr. HST ..... 4.1 inches

**Combat Course**

10 Federal American Eagle 230-gr. ball  
 10 Magnus 200-gr. SWC handload  
 Ten Hornady 185-grain XTP  
 Rating .....7  
 Malfunctions .....0

### **Springfield Lightweight Loaded Model**

This is one of my personal carry guns. The pistol features a long sight radius coupled with a lightweight aluminum frame, a startlingly effective combination. This pistol has digested perhaps 8,500 rounds of ammunition and continues to remain completely reliable. That is all we can ask. The pistol has the standard features of the Loaded Model, but has more flash due to the two tone treatment. After a day's work at the range you may be rubbing your wrists as the pistol is lighter than a steel frame pistol but the performance cannot be faulted.



**The author often carries** his LW Springfield Loaded Model in this DGL holster. This is a good combination, proofed and tested.



**The Springfield LW.45** has done yeoman service for several years.

10-yard group  
Hornady 185-gr. XTP ..... 3.65 inches  
25-yard group  
Hornady 200-gr. XTP ..... 3.5 inches

**Combat Course**

20 rounds CorBon 185-gr. JHP  
10 rounds Hornady 185-gr. XTP  
Rating .....10  
Malfunctions .....0

**Springfield Loaded Model**

The Springfield Loaded Model was largely an answer to Kimber's introduction of a pistol loaded with features. Some of the first loaded models were fitted with Novak rear sights but not dovetail front sights. They were oft en GI guns with a few features added. We deserved more, and today the Loaded Model is oft en recommended as a best buy by sage shooters. The pistol is fitted a bit tighter than the GI pistol and usually is capable of greater intrinsic accuracy.



**A target grade.45 and Federal** ammunition is a dream come true for those who pursue accuracy.

When you begin to look to acquire a good 1911 of the better type, the Loaded Model should never be overlooked. The pistol is readily available. It has a good warranty and an excellent service record. Let's look at the Loaded Model's performance. The Loaded Model is well worthy of use as a

personal defense handgun. There are many Loaded Models in use and I recommend the type without hesitation.

10-yard group  
Federal 230-gr. American Eagle ..... 3.5 inches  
20-yard group  
CorBon 230-gr. Performance Match .....3.0

#### **Combat Course**

20 rounds Wolf 230-gr. FMJ  
10 rounds CorBon 165-grain JHP  
Rating .....9  
Malfunctions .....0

### **Springfield Loaded Model Target**

This is simply a target sighted version of the Loaded Model. Our pistol showed remarkable fit and it is also tighter than any previous Loaded Model we have tested. The pistol demanded a modest break-in period, but that is SOP for such a tight pistol. Accuracy was excellent and in the end so was reliability. Does Springfield fit the target sighted pistols more tightly? Perhaps.

10-yard group  
Hornady 185-grain XTP ..... 2.8 inches  
25-yard group  
Hornady 200-grain XTP ..... 2.15 inches

#### **Combat Course**

20 rounds Fiocchi 230-gr. ball  
10 rounds Mastercast 230-gr. JHP  
Rating .....9  
Malfunctions .....11 (all break-in related)

### **Springfield LW Operator**

The LW Operator is simply an Operator type built on the Champion LW aluminum frame. This pistol displayed safety and beavertail grip safety fit equal to that of any handgun tested including the high-end pistols. Trigger compression is a smooth, tight 4.25 pounds. The sights were properly regulated for 230-gr. loads. This pistol proved especially accurate with the Hornady 200-gr. XTP. The XTP breaks 900 fps from the Springfield's 4-inch barrel. Considering the light weight of this.45, a lighter bullet that

delivers a good balance of expansion and penetration is ideal. This is a formidable service pistol, especially when compared to polymer frame pistols of the same size and weight.

10-round group

Hornady 230-gr. XTP +P ..... 4.5 inches

25-yard group

Hornady 200-grain XTP ..... 3.25 inches

### **Combat Course**

10 rounds Winchester 230-gr. FMJ

20 rounds handload using Nosler

185-grain JHP at 900 fps

Rating .....10

Malfunctions .....0

### **Springfield Novak Custom 1911**

This pistol started life as a Springfield GI pistol and it is still a GI pistol, but it has been improved with high visibility, capable handgun sights. Novak's also tuned the extractor and generally checked out the entire upper unit for function. The end result is a classic that will stand the test of time. The pistol does all a combat pistol is supposed to do.

10-round group

Black Hills 230-gr. FMJ ..... 4.0 inches

25-round group

Black Hills 185-gr. JHP ..... 2.9 inches

### **Combat Course**

20 rounds Black Hills 230-gr. FMJ

10	rounds	Black	Hills	185-gr.	JHP	Rating
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.....10

Malfunctions .....0



**This is a rapid fire** group with the Novak.45. Good performance from a legendary shop.

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